United States
Department of
Agriculture

Natural
Resources
Conservation
Service

Washington Basin Outlook Report April 1, 2001

Basin Outlook Reports
and
Federal - State - Private
Cooperative Snow Surveys

For more water supply and resource management information, contact:

Local Natural Resources Conservation Service Field Office

or

Scott Pattee
Water Supply Specialist
Natural Resources Conservation Service
2021 E. College Way, Suite 214
Mt. Vernon, WA 98273-2873
(360) 428-7684

or

Betty Schmitt
Public Affairs Specialist
Natural Resources Conservation Service
316 W. Boone Ave., Suite 450
Spokane, WA 99201-2348
(509) 323-2912

How forecasts are made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

Washington
Water Supply Outlook

April 2001

General Outlook

"Drought " was the word from Olympia on March 14. We all suspected the announcement but no one was quite sure when Governor Locke would udder the declaration. As irrigators, power companies, fish biologists and federal and state agencies debated allocation of limited water resources we ironically had one of the best precipitation months this water-year. Precipitation averages increased slightly and snowpack averages remained relatively stable. April – September streamflow forecasts also saw little adjustment from last month and reservoir levels increased slightly due to near normal precipitation and low elevation snowmelt. Conservation, efficiency, and curtailment are the battle cries of many water and energy resource policy and decision makers in our state, as we sit on the cusp of what could be one of the most economically and environmentally devastating years on record.

Snowpack

The April 1 statewide SNOTEL readings remain well below average at 61%. Basins with less than 50% of average snowpack remaining included; Newman Lake, Omak Creek, Toats Coulee Creek, Ahtanum Creek and the Olympic Peninsula. Readings taken in the Cedar River Basin reported the highest at 76% of average, down 8% from last month. Westside averages from SNOTEL and April 1 snow surveys included the North Puget Sound river basins with 53%, the Central Puget river basins with 67%, and the Lewis-Cowlitz basins with 64%. Snowpack along the east slopes of the Cascade Mountains included the Yakima area with 60% and the Wenatchee area with 59%. Snowpack in the Spokane River Basin was at 52% and the Pend Oreille River Basin, including Canadian data, had 57% of average. Cumulative snowpack within the Columbia River Basin above The Dalles Dam reached an all time low of only 54% of average.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
Spokane	49	52
Newman Lake	31	46
Pend Oreille	63	57
Okanogan	60	58
Methow	58	55
Similkameen	85	66
Wenatchee	57	58
Chelan	56	60
Stemilt Creek	71	63
Yakima	55	60
Ahtanum Creek	51	49
Walla Walla	56	62
Lower Snake	52	56
Cowlitz	51	58
Lewis	44	69
White	54	60
Green	56	59
Puyallup	54	60
Cedar	59	76
Snoqualmie	53	65
Skykomish	54	63
Skagit	52	51
Baker	48	51
Nooksack	47	56
Olympic Peninsula	41	50

Precipitation

During the month of March, the National Weather Service and Natural Resources Conservation Service climate stations reported much better precipitation for most Washington river basins. The highest percent of average in the state was at Mt. Gardner SNOTEL in the Cedar River. Mt. Gardner reported 135% of average for a total of 11.5 inches. The average for this site is 8.5 inches for March. Basin averages for the water year increased slightly but remain dismal at only 67% of average in the Walla Walla river basins to 48% of average in Colville – Pend Oreille river basins. The highest individual site average for the water year was 79% of average at Walla Walla WSO CI.

RIVER BASIN	MARCH PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane	70	53
Colville-Pend Oreille	76	48
Okanogan-Methow	78	52
Wenatchee-Chelan	90	53
Upper Yakima	94	54
Lower Yakima	64	52
Walla Walla	78	67
Lower Snake	68	63
Cowlitz-Lewis	72	50
White-Green-Puyallup	83	57
Central Puget Sound	100	58
North Puget Sound	82	54
Olympic Peninsula	57	57

Reservoir

Seasonal reservoir levels in Washington vary greatly due to specific watershed management practices required in preparation for irrigation season, fisheries management and power generation. Reservoir storage in the Yakima Basin was 269,400-acre feet, 46% of average for the Upper Reaches and 118,100-acre feet, 77% of average for Rimrock and Bumping Lakes. Storage at the Okanogan reservoirs was 90% of average for April 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 118,500 acre feet, 70% of average and 50% of capacity; Chelan Lake, 405,200 acre feet, 191% of average and 60% of capacity; and Ross Lake at 243% of average and 52% of capacity. Above average current storage at some reservoirs is associated with management efforts to buffer potential summer shortages. Below average storage can be attributed to below average seasonal snowmelt and precipitation to date.

BASIN	PERCENT OF CAPACITY	CURRENT STORAGE AS PERCENT OF AVERAGE
Spokane	50	70
Colville-Pend Oreille	89	294
Okanogan-Methow	57	90
Wenatchee-Chelan	60	191
Upper Yakima	32	46
Lower Yakima	51	77
North Puget Sound	52	243

For more information contact your local Natural Resources Conservation Service office.

Streamflow

Mid season forecasts indicate much below to below normal summer flows for all streams in the state. They vary from 79% of average for Mill Creek at Walla Walla to 46% of average for Snake River below Lower Granite Dam. April forecasts for some Western Washington streams include: Cedar River near Cedar Falls, 67%; Green River, 67%; and Skagit River, 69%. Some Eastern Washington streams include the Yakima River near Parker, 55%: Wenatchee River at Peshastin, 56%; and Spokane River near Post Falls, 53%. Volumetric forecasts are developed using current, historic and average snowpack, precipitation and streamflow data collected and coordinated by organizations cooperating with NRCS.

Streamflows reported for March were well below average across the state. The Walla Walla River near Milton Freewater, had the highest flows with 119% of average. The Kettle River near Laurier with 36% of average, was the lowest in the state. Other streamflows were the following percentage of average: the Priest River, 44%; the Spokane at Spokane, 42%; the Columbia below Rock Island Dam, 50%; the Cowlitz River at Castle Rock, 54%; and the Snake River below Ice Harbor Dam, 51%.

BASIN	PERCENT OF AVERAGE MOST PROBABLE FORECAST (50 PERCENT CHANCE OF EXCEEDENCE)
Spokane	53-54
Colville-Pend Oreille	48-67
Okanogan-Methow	47-54
Wenatchee-Chelan	55-67
Upper Yakima	60-70
Lower Yakima	53-70
Walla Walla	76-79
Lower Snake	46-54
Cowlitz-Lewis	53-70
White-Green-Puyallup	67-69
Central Puget Sound	67-73
North Puget Sound	67-70
Olympic Peninsula	66-68

STREAM	PERCENT OF AVERAGE MARCH STREAMFLOWS
Pend Oreille Below Box Canyon	46
Kettle at Laurier	36
Columbia at Birchbank	63
Spokane at Long Lake	46
Similkameen at Nighthawk	49
Okanogan at Tonasket	44
Methow at Pateros	49
Chelan at Chelan	47
Wenatchee at Pashastin	46
Yakima at Cle Elum	71
Yakima at Parker	50
Naches at Naches	38
Grande Ronde at Troy	56
Snake below Lower Granite Dam	56
SF Walla Walla near Milton Freewater	119
Columbia River at The Dalles	54
Lewis at Ariel	64
Cowlitz below Mayfield Dam	55
Skagit at Concrete	57

For more information contact your local Natural Resources Conservation Service office.

BASIN SUMMARY OF SNOW COURSE DATA

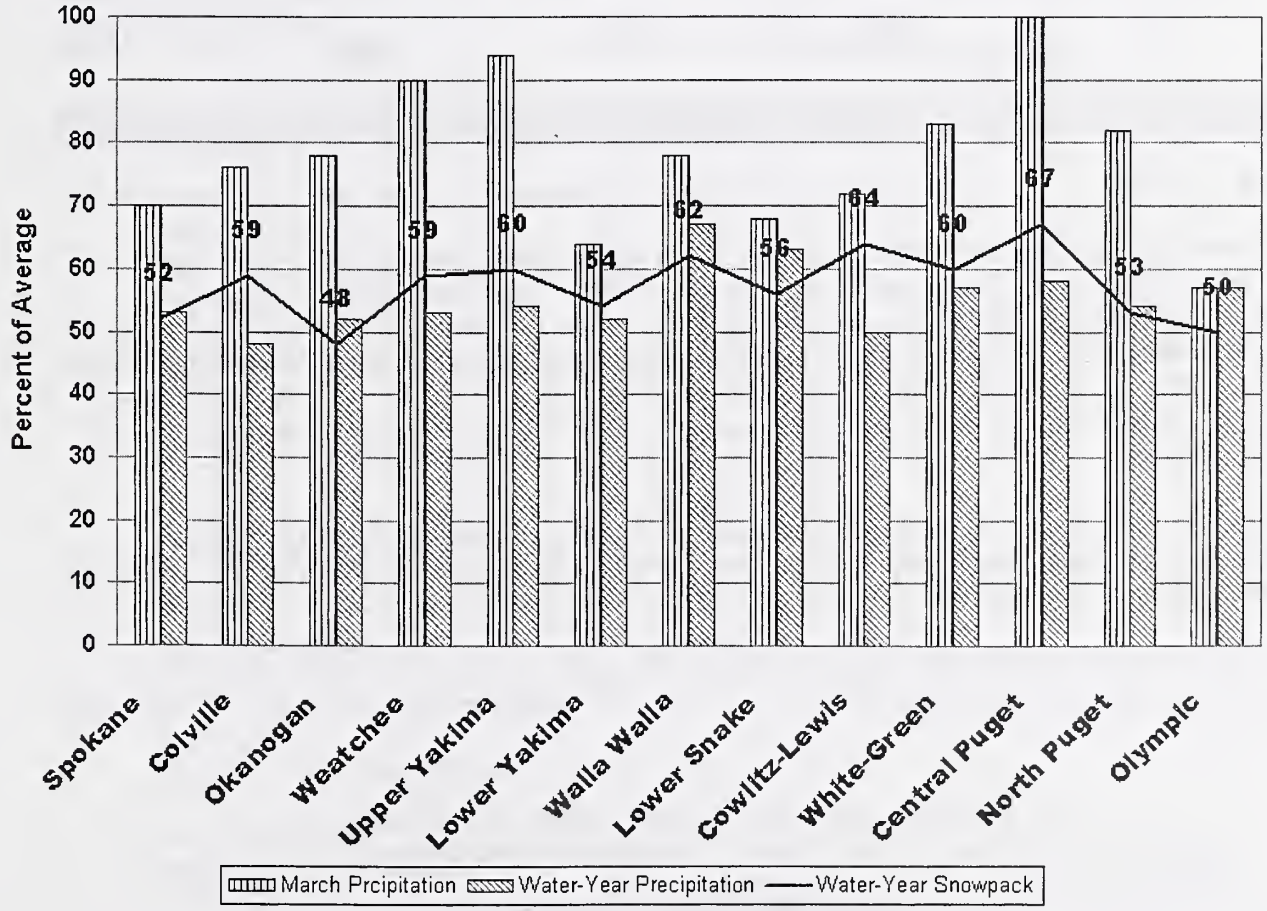
APRIL 2001

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
ABERDEEN LAKE CAN.	4000	3/29/01	13	3.5	5.5	5.7
ABOVE ROLAND	4350	4/01/01	42	17.4	31.0	32.3
ALPINE MEADOWS	3500	3/23/01	61	24.4	57.8	43.7
ALPINE MEADOWS PILL	3500	4/01/01	---	34.6	64.6	43.5
AMBROSE	6480	3/29/01	28	7.5	9.7	13.2
ASHLEY DIVIDE	4820	3/27/01	13	3.5	4.4	6.6
BADGER PASS PILLOW	6900	4/01/01	---	18.9	30.0	36.5
BAREE CREEK	5500	3/29/01	59	23.7	41.3	45.3
BAREE MIDWAY	4600	3/29/01	52	18.5	32.7	35.1
BAREE TRAIL	3800	3/29/01	20	7.8	9.4	8.4
BARKER LAKES PILLOW	8250	4/01/01	---	11.6	9.6	15.4
BARNES CREEK CAN.	5320	3/27/01	40	11.8	22.7	20.0
BASIN CREEK PILLOW	7180	4/01/01	---	6.8	7.4	8.7
BASSOO PEAK	5150	4/01/01	---	8.5E	8.8	11.3
BEAVER CREEK TRAIL	2200	3/31/01	13	4.4	15.8	11.6
BEAVER PASS	3680	3/31/01	34	12.7	30.3	29.7
BERNE-MILL CREEK (d)	3170	4/01/01	51	20.9	28.8	27.2
BIG CREEK	6750	4/01/01	---	30.9E	37.3	45.7
BIG WHITE MTN CAN.	5510	4/01/01	48	13.1	20.0	19.6
BLACK MOUNTAIN	7750	3/27/01	46	11.3	13.6	16.3
BLACK PINE PILLOW	7100	4/01/01	---	8.3	9.9	12.7
BLEWETT PASS #2	4270	3/26/01	23	9.3	17.8	15.1
BLEWETT PASS#2PILLOW	4270	4/01/01	19	6.5	13.8	17.8
BLUE LAKE	5900	3/31/01	47	13.7	18.6	25.3
BRENDA MINE CAN.	4450	4/01/01	---	9.3	11.9	12.8
BRIEF	1600	3/27/01	0	.0	.0	2.5
BROWN TOP AM	6000	3/30/01	88	29.6	56.0	59.6
BRUSH CREEK TIMBER	5000	3/29/01	18	5.0	6.8	9.5
BULL MOUNTAIN	6600	3/28/01	10	3.3	5.5	6.4
BUMPING LAKE (NEW)	3400	3/27/01	23	7.0	16.0	18.3
BUMPING RIDGE PILLOW	4600	4/01/01	---	16.7	30.0	21.2
BUNCHGRASS MDWPILLOW	5000	4/01/01	---	16.3	33.0	26.6
BUTTE CREEK	4070	3/28/01	18	5.1	8.9	9.0
CAMP MISERY	6400	3/30/01	18	3.2	54.8	49.0
CARMI CAN.	4100	4/01/01	13	3.2	4.2	5.9
CAYUSE PASS	5300	4/01/01	---	49.5E	80.4	82.4
CEDAR GROVE	3760	3/29/01	23	8.6	10.8	12.2
CHESSMAN RESERVOIR	6200	3/26/01	13	3.2	1.6	3.9
CHEWALAH	4930	3/29/01	31	9.9	21.7	16.1
CHICKEN CREEK	4060	3/29/01	27	10.0	16.9	14.0
CHIWAUKUM G.S.	2500	4/01/01	14	4.4	8.4	8.9
CITY CABIN	2390	4/01/01	---	10.4E	13.3	13.6
COLOCKUM PASS	5370	3/27/01	29	9.0	14.9	16.5
COMBINATION PILLOW	5600	4/01/01	---	4.0	3.3	5.8
COPPER BOTTOM PILLOW	5200	4/01/01	---	8.0	11.5	11.7
COPPER CAMP	6950	3/25/01	42	14.7	25.4	29.9
COPPER CREEK	5700	3/25/01	24	7.7	14.8	14.2
COPPER MOUNTAIN	7700	3/31/01	35	9.4	11.6	11.4
CORNER CREEK	3150	3/29/01	17	5.1	9.1	6.1
CORRAL PASS PILLOW	6000	4/01/01	---	20.7	37.9	32.6
COTTONWOOD CREEK	6400	3/27/01	25	4.7	7.8	8.8
COUGAR MTN. PILLOW	3200	4/01/01	---	13.2	20.3	18.8
COX VALLEY	4500	3/31/01	45	17.6	39.5	39.5
COYOTE HILL	4200	3/26/01	16	6.0	8.8	9.5
DALY CREEK PILLOW	5780	4/01/01	---	6.8	9.5	11.9
DEER PARK	5200	3/30/01	22	8.4	20.2	20.9
DESERT MOUNTAIN	5600	3/31/01	33	9.8	14.2	15.5
DEVILS PARK	5900	3/30/01	71	26.2	42.0	42.9
DISCOVERY BASIN	7050	3/30/01	31	8.6	8.2	11.3
DIX HILL	6400	4/01/01	26	7.9	9.9	11.3
DOMMERIE FLATS	2200	3/28/01	0	.0	3.0	4.3
EAST FORK R.S.	5400	3/23/01	12	3.3	5.6	5.6
EAST RAGGED SADDLE	3740	4/01/01	32	14.0	26.9	20.4
EASY PASS AM	5200	4/01/01	---	41.0E	75.0	82.9
EL DORADO MINE	7800	3/24/01	47	14.4	15.2	21.6
ELBOW LAKE PILLOW	3200	4/01/01	---	21.3	50.6	32.0
EMERY CREEK	4350	3/31/01	32	11.2	16.8	15.7
EMERY CREEK PILLOW	4350	4/01/01	---	10.3	15.3	16.3
ENDERBY CAN.	5800	3/29/01	80	24.4	47.6	38.9
ESPERON CK. MID CAN.	4250	3/31/01	30	7.7	12.6	14.3
ESPERON CK. UP CAN.	5050	3/31/01	36	9.6	14.6	17.0
FARRON CAN.	4000	3/26/01	22	6.4	14.8	13.3
FATTY CREEK	5500	4/01/01	---	17.0E	21.4	24.3
FISH CREEK	8000	3/28/01	32	8.1	8.8	9.9
FISH LAKE	3370	3/27/01	40	16.9	39.1	31.4
FISH LAKE PILLOW	3370	4/01/01	43	17.0	35.2	31.9
FLATTOP MTN PILLOW	6300	4/01/01	---	24.0	41.4	47.1
FLEECER RIDGE	7500	3/28/01	24	5.5	10.0	11.3
FOURTH OF JULY SUM	3200	3/30/01	12	4.6	5.7	6.8
FRED BURR PASS	8000	3/30/01	54	15.7	20.8	25.4
FREEZEOUT CK. TRAIL	3500	3/30/01	16	4.6	11.6	11.5
FROHNER MDWS PILLOW	6480	4/01/01	---	7.1	6.1	8.7
GIBBONS PASS	7100	3/23/01	40	12.2	20.0	23.2
GOAT CREEK	3600	3/28/01	---	1.1E	4.9	4.3
GOLD CREEK LAKE	7200	3/24/01	35	9.6	10.0	15.9
GRASS MOUNTAIN #2	2900	4/01/01	---	7.0E	11.7	15.9
GRAVE CREEK	4300	3/27/01	22	7.2	16.7	17.0
GRAVE CRK PILLOW	4300	4/01/01	---	8.9	15.5	16.7
GRAYSTOKE LAKE CAN.	5500	3/29/01	32	7.7	--	16.2
GREEN LAKE PILLOW	6000	4/01/01	40	12.8	24.4	20.7
GREYBACK RES CAN.	4700	3/29/01	15	5.1	7.9	9.0
GRIFFIN CR DIVIDE	5150	4/01/01	---	7.4E	8.6	11.2
GROUSE CAMP PILLOW	5380	4/01/01	---	12.3	20.5	19.8
GUNSIGHT LAKE	6300	3/31/01	75	24.4	37.4	40.0
HAMILTON HILL CAN.	4550	4/01/01	29	8.9	11.3	14.7
HAND CREEK PILLOW	5030	4/01/01	---	8.3	12.1	13.3
HARTS PASS PILLOW	6500	4/01/01	66	21.5	36.1	41.3
HEART LAKE TRAIL	4800	3/27/01	34	11.7	19.4	21.6
HELL ROARING DIVIDE	5770	3/30/01	48	14.0	27.9	31.0
HERRIG JUNCTION	4850	3/29/01	38	12.0	25.3	26.0
HIGH RIDGE PILLOW	4980	4/01/01	---	13.6	26.7	24.4
HOLBROOK	4530	3/31/01	22	6.0	9.6	9.0
HOODOO BASIN PILLOW	6050	4/01/01	---	21.7	39.8	47.0
HUMBOLDT GLCH PILLOW	4250	4/01/01	---	8.9	13.7	13.3
HURRICANE	4500	3/31/01	14	4.5	17.8	22.1
INTERGAARD	6450	3/27/01	23	4.8	6.5	8.6
ISINTOK LAKE CAN.	5100	3/27/01	20	5.1	5.8	7.1
JUNE LAKE PILLOW	3200	4/01/01	---	25.3	58.5	36.3
KELLOGG PEAK	5560	4/01/01	41	14.2	32.0	31.6
KISHENEHN	3890	3/28/01	15	4.1	5.9	7.0
KIT CARSON PASTURE	4950	3/28/01	11	3.4	5.5	8.8
KLESILKWA CAN.	3450	3/30/01	13	3.6	11.7	11.9
KRAFT CREEK PILLOW	4750	4/01/01	---	11.9	15.0	15.3
LESTER CREEK	3100	4/01/01	---	12.0E	23.2	23.3
LIGHTNING LAKE CAN.	3700	3/30/01	26	6.9	11.4	12.4
LOGAN CREEK	4300	3/29/01	20	5.6	6.0	7.1
LOLO PASS PILLOW	5240	4/01/01	44	14.9	31.8	32.3
LONE PINE PILLOW	3800	4/01/01	---	22.8	51.7	32.1
LOOKOUT PILLOW	5140	4/01/01	---	18.4	31.7	33.4
LOST HORSE	5940	3/27/01	44	13.7	27.6	32.3
LOST HORSE MTN CAN.	6300	4/03/01	33	7.0	7.8	9.3
LOST HORSE PILLOW	5000	4/01/01	28	10.2	21.0	26.4
LOST LAKE PILLOW	6110	4/01/01	---	26.8	56.4	63.2
LOWER SANDS CREEK #2	3120	3/28/01	34	12.2	22.6	19.6
LUBRECHT FOREST NO 3	5450	3/28/01	18	4.5	5.1	6.8
LUBRECHT FOREST NO 4	4650	3/28/01	5	1.3	.7	2.1
LUBRECHT FOREST NO 6	4040	3/28/01	6	1.7	.8	2.3
LUBRECHT HYDROPLOT	4200	3/28/01	5	1.3	2.7	4.2
LUBRECHT PILLOW	4680	4/01/01	---	1.9	.9	5.1
LYMAN LAKE PILLOW	5900	4/01/01	---	34.1	60.8	56.9
LYNN LAKE	4000	4/01/01	---	15.0E	29.7	22.0
MARIAS PASS	5250	3/29/01	32	12.1	15.2	17.4
MARTEN LAKE AM	3600	4/01/01	---	36.0E	83.6	73.4
MCCULLOCH CAN.	4200	3/30/01	14	4.2	6.1	6.3
MEADOWS CABIN	1900	3/30/01	0	.0	3.8	4.8
MEADOWS PASS PILLOW	3240	4/01/01	---	17.5	32.1	24.9
MERRITT	2140	4/01/01	8	3.6	8.1	12.8
MICA CREEK PILLOW	4750	4/01/01	---	16.9	29.3	--
MINERAL CREEK	4000	3/31/01	30	10.2	20.2	17.5
MISSEZULA MTN CAN.	5080	3/31/01	20	6.0	6.8	9.2
MISSION RIDGE	5000	3/28/01	36	10.9	18.7	16.5
MONASHEE PASS CAN.	4500	3/27/01	24	7.4	13.6	13.6
MOOSE CREEK PILLOW	6200	4/01/01	---	10.3	16.3	18.0
MORRISSEY RIDGE CAN.	6100	4/01/01	---	14.2	22.8	28.6
MORSE LAKE PILLOW	5400	4/01/01	---	26.8	61.6	47.2
MOSES MTN PILLOW	4800	4/01/01	---	7.3	20.0	15.5
MOSQUITO RDG PILLOW	5200	4/01/01	---	18.0	40.2	37.3
MOULTON RESERVOIR	6850	3/28/01	22	5.0	7.0	6.8
MOUNT CRAG PILLOW	4050	4/01/01	---	20.1	35.6	31.5
MT. KOBAU CAN.	5500	3/31/01	32	8.7	10.4	12.7
MOUNT GARDNER	3300	3/23/01	26	9.2	15.1	14.1
MOUNT GARDNER PILLOW	2860	4/01/01	---	12.0	17.1	14.0
MUTTON CREEK #1	5700	3/30/01	23	6.8	13.7	13.2
N.F. ELK CR PILLOW	6250	4/01/01	---	9.6	12.2	13.2
NEW HOZOMEEN LAKE	2800	3/30/01	15	4.8	9.2	10.4
NEZ PERCE CMP PILLOW	5650	4/01/01	---	9.5	14.7	15.1
NEZ PERCE PASS	6570	3/28/01	32	9.5	17.3	19.2
NOISY BASIN	6040	3/29/01	75	25.8	49.5	45.4
NOISY BASIN PILLOW	6040	4/01/01	---	24.5	41.9	40.7
OLALLIE MDWS PILLOW	3960	4/01/01	---	36.1	56.1	53.5
OLALLIE MEADOWS	3630	4/01/01	---	30.2E	45.0	44.8
OPHIR PARK	7150	4/01/01	41	11.5	13.8	18.0
OYAMA LAKE CAN.	4100	3/30/01	19	4.8	7.4	6.4
PALISADE CREEK	8250	3/29/01	59	19.7	28.7	29.9
PARADISE PARK PILLOW	5500	4/01/01	---	42.5	79.6	62.1
PARK CK RIDGE PILLOW	4600	4/01/01	64	26.6	49.5	41.6
PETERSON MDW PILLOW	7200	4/01/01	---	8.7	7.9	11.0
PIGTAIL PEAK PILLOW	5900	4/01/01	---	25.2	48.1	49.3
PIKE CREEK	5930	3/28/01	42	12.5	21.5	26.7
PIKE CREEK PILLOW	5930	4/01/01	---	13.3	23.4	27.9
PIPESTONE PASS	7200	4/01/01	18	4.2	5.2	5.9
POPE RIDGE PILLOW	3540	4/01/01	26	10.1	18.8	15.7
POSTILL LAKE CAN.	4200	3/30/01	26	6.3	8.2	8.7
POTATO HILL PILLOW	4500	4/01/01	---	16.2	27.5	25.3
QUARTZ PEAK PILLOW	4700	4/01/01	---	10.8	28.1	21.9
ROUND TOP MTN	4020	4/02/01	16	5.6	18.8	--

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
RAGGED RIDGE	3330	3/30/01	---	1.0E	9.4	3.5
RAINY PASS PILLOW	4780	4/01/01	---	23.1	38.5	38.0
REX RIVER PILLOW	1900	4/01/01	44	18.0	39.3	27.6
ROCKER PEAK PILLOW	8000	4/01/01	---	11.9	10.8	15.3
ROLAND SUMMIT	5120	4/01/01	46	18.9	38.5	37.3
RUSTY CREEK	4000	3/30/01	6	1.9	5.6	5.9
SADDLE MTN PILLOW	7900	4/01/01	---	15.0	19.9	26.1
SAGE CREEK SADDLE	4080	3/29/01	23	8.1	20.9	17.8
SALMON MDWS PILLOW	4500	4/01/01	18	6.4	8.2	9.4
SASSE RIDGE PILLOW	4200	4/01/01	---	20.9	37.0	32.1
SAVAGE PASS PILLOW	6170	4/01/01	53	15.0	24.8	27.2
SAWMILL RIDGE	4700	4/01/01	---	20.0	32.7	36.3
SHEEP CANYON PILLOW	4050	4/01/01	---	19.1	51.7	39.8
SILVER STAR MTN CAN.	5600	4/01/01	61	18.3	35.1	28.6
SKALKAHO PILLOW	7260	4/01/01	---	13.4	21.4	24.9
SKITWISH RIDGE	5110	3/28/01	46	17.3	37.1	31.2
SKOOKUM CREEK PILLOW	3920	4/01/01	---	14.7	41.7	29.3
SLIDE ROCK MOUNTAIN	7100	3/24/01	28	7.4	11.0	16.7
SPENCER MDW PILLOW	3400	4/01/01	---	19.4	49.9	29.6
SPIRIT LAKE PILLOW	3100	4/01/01	---	.0	11.9	3.6
SPOTTED BEAR MTN.	7000	3/31/01	38	11.6	13.9	14.9
STAHL PEAK PILLOW	6030	4/01/01	---	17.2	33.2	35.1
STAMPEDE PASS PILLOW	3860	4/01/01	---	27.7	50.5	44.4
STEMILT SLIDE	5000	3/28/01	23	6.7	14.0	12.8
STEMPLE PASS	6600	3/30/01	27	6.0	10.7	10.6
STEVENS PASS PILLOW	4070	4/01/01	---	23.2	34.1	42.3
STEVENS PASS SAND SD	3700	4/01/01	53	20.8	35.6	33.7
STORM LAKE	7780	3/30/01	40	10.2	10.4	14.0
STRANGER MOUNTAIN	4230	3/28/01	25	8.2	15.8	12.2
STRYKER BASIN	6180	3/29/01	48	15.1	30.6	34.6
SUMMERLAND RES CAN.	4200	3/26/01	17	4.6	7.6	9.1
SUMMIT G.S.	4600	3/28/01	22	6.2	11.1	8.1
SUNSET PILLOW	5540	4/01/01	---	14.3	25.2	29.9
SURPRISE LKS PILLOW	4250	4/01/01	---	30.1	63.8	44.2
TEN MILE LOWER	6600	3/26/01	22	5.4	4.6	7.8
TEN MILE MIDDLE	6800	3/26/01	30	7.8	7.2	12.2
THUNDER BASIN	4200	3/29/01	36	13.0	23.4	21.7
TINKHAM CREEK PILLOW	3000	4/01/01	---	20.1	30.1	19.9
TOGO	3370	4/01/01	---	6.5E	13.2	10.8
TOUCHET #2 PILLOW	5530	4/01/01	---	21.4	36.1	31.9
TRINKUS LAKE	6100	3/31/01	80	28.3	41.6	43.4
TROUGH #2 PILLOW	5310	4/01/01	---	6.5	10.7	9.7
TROUT CREEK CAN.	5650	3/26/01	16	4.6	7.4	6.9
TRUMAN CREEK	4060	3/27/01	12	3.4	3.4	3.5
TUNNEL AVENUE	2450	3/28/01	39	15.0	20.8	20.8
TV MOUNTAIN	6800	4/01/01	---	12.6E	15.9	19.2
TWELVEMILE PILLOW	5600	4/01/01	---	9.0	17.6	18.6
TWIN CREEKS	3580	3/31/01	25	8.0	12.4	10.3
TWIN LAKES PILLOW	6400	4/01/01	---	23.6	40.6	40.4
TWIN SPIRIT DIVIDE	3480	4/01/01	22	8.8	13.2	13.9
UPPER HOLLAND LAKE	6200	3/31/01	68	21.4	36.2	35.4
UPPER WHEELER PILLOW	4400	4/01/01	---	9.9	9.3	13.6
VASEUX CREEK CAN.	4250	3/29/01	10	2.8	5.7	6.3
WARM SPRINGS PILLOW	7800	4/01/01	---	15.2	18.4	22.3
WATSON LAKES AM	4500	4/01/01	---	35.5	77.0	64.9
WEASEL DIVIDE	5450	3/27/01	40	12.3	32.8	33.8
WELLS CREEK PILLOW	4200	4/01/01	---	18.6	35.2	39.0
WHITE PASS ES PILLOW	4500	4/01/01	---	11.9	25.1	22.9
WHITE ROCKS MTN CAN.	7200	3/29/01	42	12.5	19.9	23.0

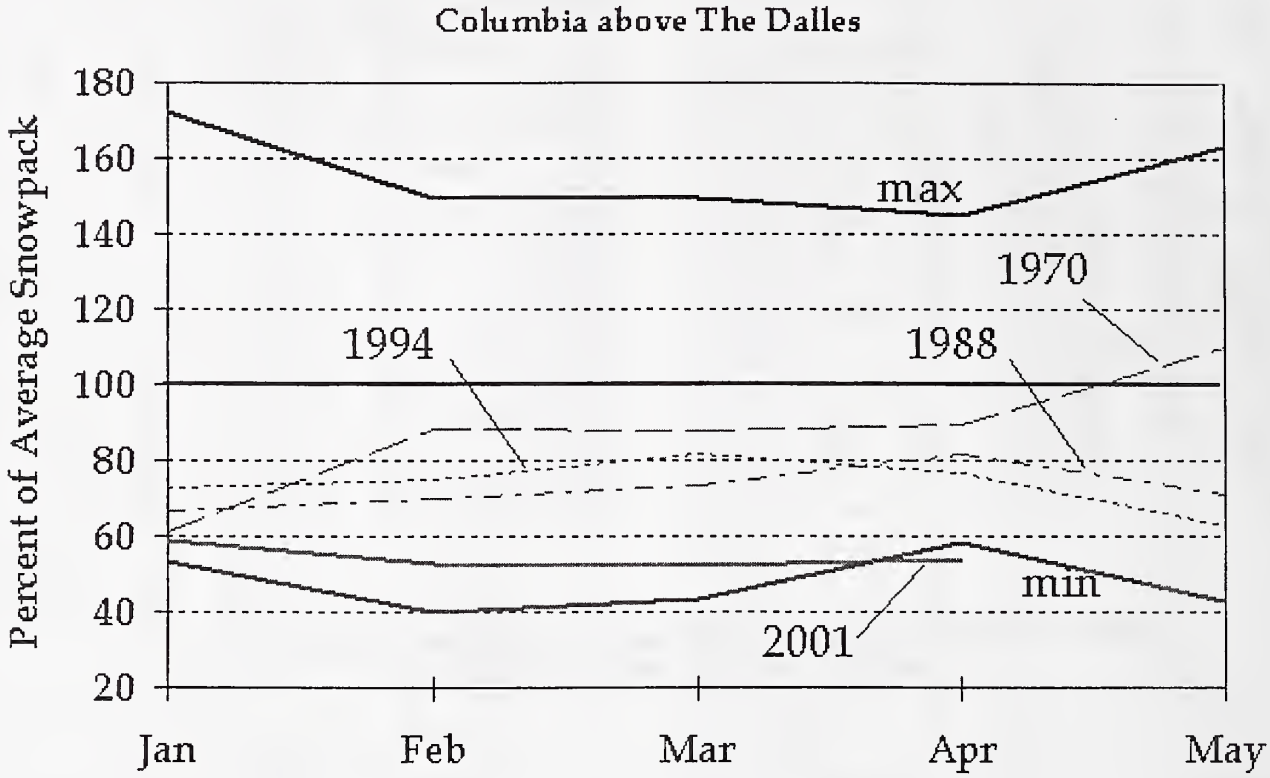
April 1 - Snowpack and Precipitation Conditions at a Glance

(Water Year = October 1, 2000 - Current Date)



Columbia Basin Snowpack Summary

For the Water Year: 2001



April, 2001

The Columbia Basin in March continued the low snowpack trend established in January and February. For the first three weeks of the month, each major sub- basin of the Columbia stayed within a few percentage points of its first of the month reading. However, the last week saw a few storms, allowing some sub-basins to go up a few percent. That seems to be the best this winter is capable of. Canada went up 5% to 59%, the Kootenay up 3% to 49%. That Kootenay number is not the lowest in the Columbia, with the Salmon having stayed the same as last month (47%) and Oregon's John Day melting snow and dropping to 44%.

In addition, central Idaho's Boise and Payette basins are at 45%, a drop of 8% from last month. Washington now has the best snowpack in the US Columbia, with the Yakima at 59% (up 1%) and the North Cascades at 58% (up 3%).

The overall snowpack for the Columbia above The Dalles is 54%, a new record minimum for April 1. The previous minimum was 58% in 1977.

For Further Columbia River Basin Information,
Contact Dan Moore, Forecast Hydrologist
National Water & Climate Center (503) 414-3054 or E-Mail at:
dmoore@wcc.nrcs.usda.gov

USDA NRCS

Natural Resources Conservation Service

Washington State
Snow, Water and Climate Services

Program Contacts

Leonard Jordan
State Conservationist
W. 316 Boone Ave., Suite 450
Spokane, WA 99201-2348
phone: 509-323-2961
fax: 509-323-2979
leonard.jordan@wa.usda.gov

Scott Pattee
Water Supply Specialist
2021 E. College Way, Suite 214
Mount Vernon, WA 98273-2873
phone: 360-428-7684
fax: 360-424-6172
scott.pattee@wa.usda.gov

Betty Schmitt
Public Affairs Specialist
W. 316 Boone Ave., Suite 450
Spokane, WA 99201-2348
phone: 509-323-2912
fax: 509-323-2909
betty.schmitt@wa.usda.gov

Chris Pacheco
Resource Conservationist
National Water and Climate Center
101 SW Main St., Suite 1600
Portland, OR 97204-3224
phone: 503-414-3056
fax: 503-414-3101
cpacheco@wcc.nrcs.usda.gov

Helpful Internet Addresses

NRCS Snow Survey and Climate Services Homepages

Washington:
http://www.wa.nrcs.usda.gov/snow/snow.htm

Oregon:
http://crystal.or.nrcs.usda.gov/snowsurveys

Idaho:
http://idsnow.id.nrcs.usda.gov

National Water and Climate Center (NWCC):
http://www.wcc.nrcs.usda.gov

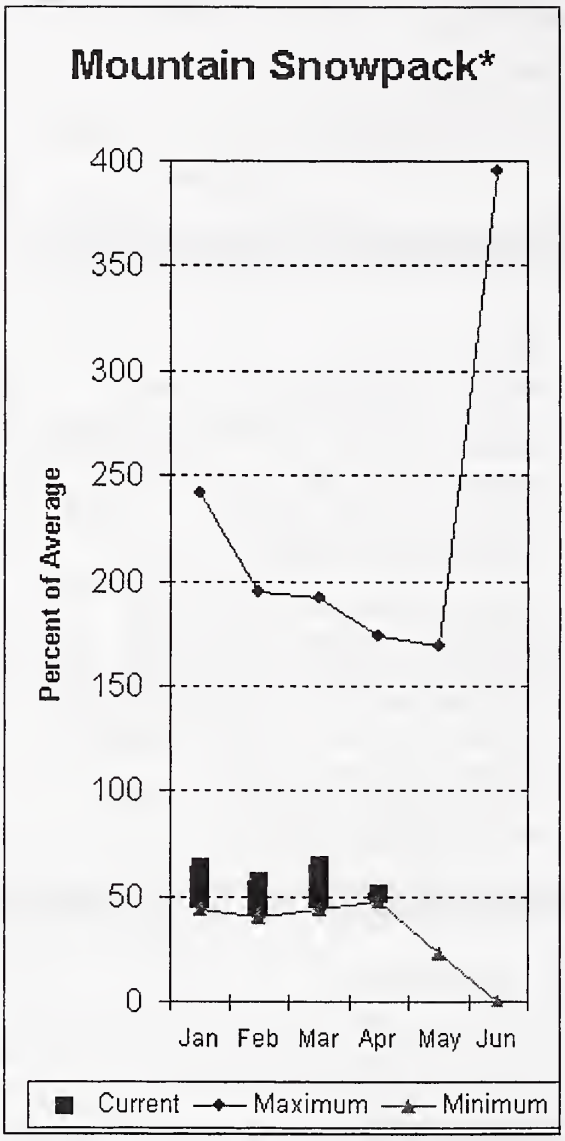
NWCC Anonymous FTP Server:
ftp.wcc.nrcs.usda.gov

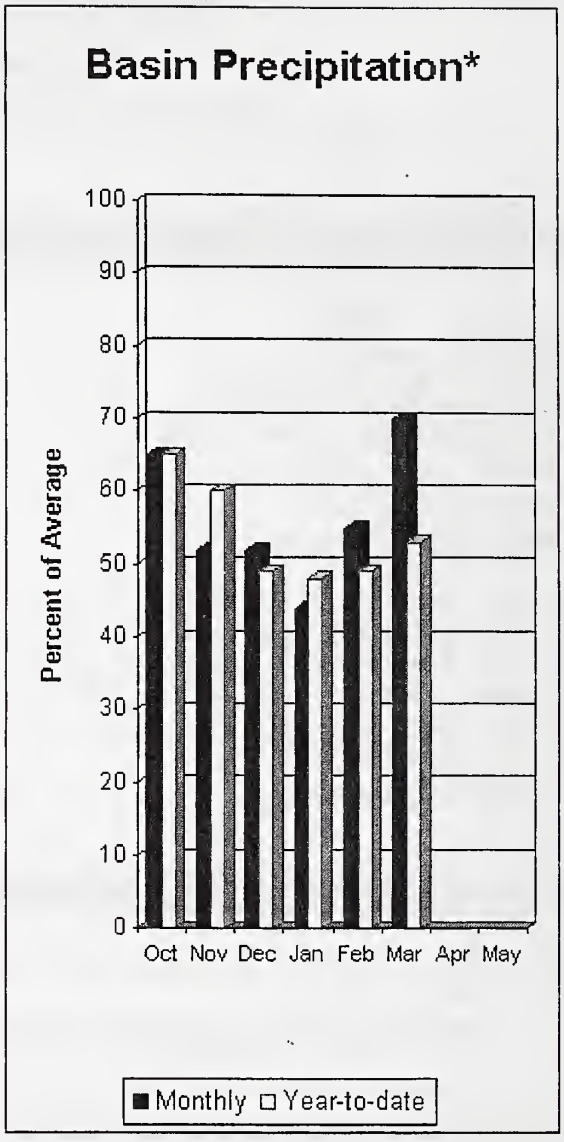
USDA-NRCS Agency Homepages

Washington:
http://www.wa.nrcs.usda.gov/nrcs

NRCS National:
http://www.ftw.nrcs.usda.gov

Spokane River Basin





*Based on selected stations

The April 1 forecasts for summer runoff within the Spokane River Basin are 53% of average near Post Falls and 54% at Long Lake. The forecast is based on a basin snowpack that is 52% of average and precipitation that is 53% of average for the water year. Precipitation for March was below normal at 70% of average. Streamflow on the Spokane River at Long Lake, was 46% of average for March. April 1 storage in Coeur d'Alene Lake, was 118,500-acre feet, 70% of average and 50% of capacity. Snowpack at Quartz Peak SNOTEL site contained 10.8 inches of water, compared to the average April 1 reading of 21.9 inches. Average temperatures in the Spokane basin were 1 degree above normal for March and 3 degrees below for the water year.

For more information contact your local Natural Resources Conservation Service office.

SPOKANE RIVER BASIN
Streamflow Forecasts - April 1, 2001

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SPOKANE near Post Falls (2)	APR-SEP	942	1233	1430	53	1627	1918	2720
	APR-JUL	922	1201	1390	53	1579	1858	2627
SPOKANE at Long Lake (2)	APR-JUL	1004	1341	1570	54	1799	2136	2905
	APR-SEP	1091	1448	1690	54	1932	2289	3128

SPOKANE RIVER BASIN
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
COEUR D'ALENE	238.5	118.5	171.5	170.1

SPOKANE RIVER BASIN
Watershed Snowpack Analysis - April 1, 2001

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
SPOKANE RIVER	19	49	53
NEWMAN LAKE	2	31	46

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

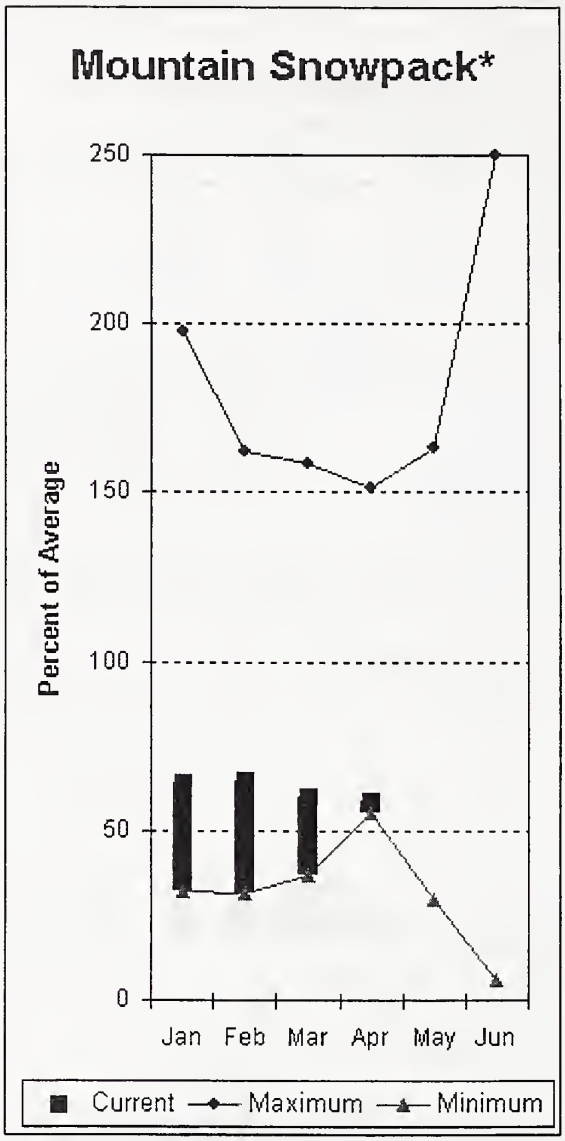
The average is computed for the 1961-1990 base period.

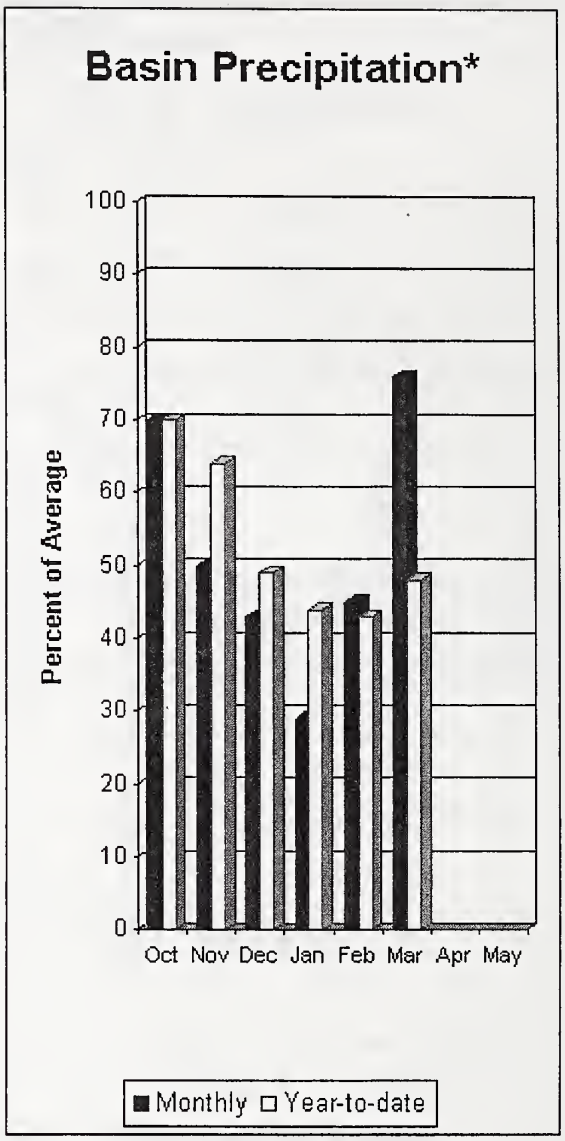
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Spokane River Basin
Percent of Average
April 1, 2001

Snowpack - 52%
Precipitation - 53%
Reservoir Capacity - 50%

Colville - Pend Oreille River Basins





*Based on selected stations

The April – September average forecast for the Kettle River streamflow is 64%, Colville at Kettle Falls is 48%, and Priest River near the town of Priest River is 48%. March streamflow was 46% of average on the Pend Oreille River, 63% on the Columbia at the International Boundary and 36% on the Kettle River. April 1 snow cover was 57% of average in the Pend Oreille Basin, 56% in the Kettle River Basin and 63% in the Colville River Basin. Bunchgrass Meadows SNOTEL site had only 16.3 inches of snow water. Normally Bunchgrass would have 26.6 inches on April 1. Precipitation during March was 76% of average, bringing the year-to-date precipitation to 48% of average. Reservoir storage in Roosevelt and Banks lakes was reported to be 294% of average and 89% of capacity on April 1. Average temperatures were 1 degree above normal for March and 3 degrees below for the water year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - April 1, 2001

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
PEND OREILLE Lake Inflow (2)	APR-JUL	4322	5542	6370	48	7198	8418	13150
	APR-SEP	4050	5783	6960	48	8137	9870	14370
PRIEST near Priest River (1,2)	APR-JUL	259	349	390	48	431	521	812
	APR-SEP	271	370	415	48	460	559	865
PEND OREILLE bl Box Canyon (2)	APR-JUL	4514	5631	6390	48	7149	8266	13380
	APR-SEP	4016	5775	6970	48	8165	9924	14590
CHAMOKANE CREEK near Long Lake	MAY-AUG	2.55	4.73	6.20	73	7.67	9.85	8.52
COLVILLE at Kettle Falls	APR-SEP	27	48	63	48	78	99	131
	APR-JUL	25	45	58	48	71	91	120
KETTLE near Laurier	APR-SEP	895	1065	1180	64	1295	1465	1854
	APR-JUL	874	1024	1125	64	1226	1376	1761
COLUMBIA at Birchbank (1,2)	APR-JUL	19308	22191	23500	67	24809	27692	35140
	APR-SEP	24044	27659	29300	67	30941	34556	43810
COLUMBIA at Grand Coulee Dm (1,2)	APR-SEP	30245	36266	39000	60	41734	47755	64850
	APR-JUL	25732	30661	32900	60	35139	40068	54543

COLVILLE - PEND OREILLE RIVER BASINS
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
ROOSEVELT	5232.0	4663.8	3159.6	1586.0
BANKS		NO REPORT		

COLVILLE - PEND OREILLE RIVER BASINS
Watershed Snowpack Analysis - April 1, 2001

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
COLVILLE RIVER	2	51	64
PEND OREILLE RIVER	107	64	58
KETTLE RIVER	9	54	56

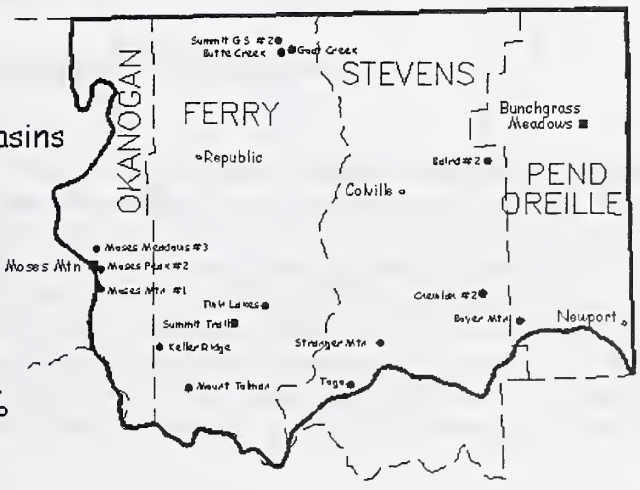
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

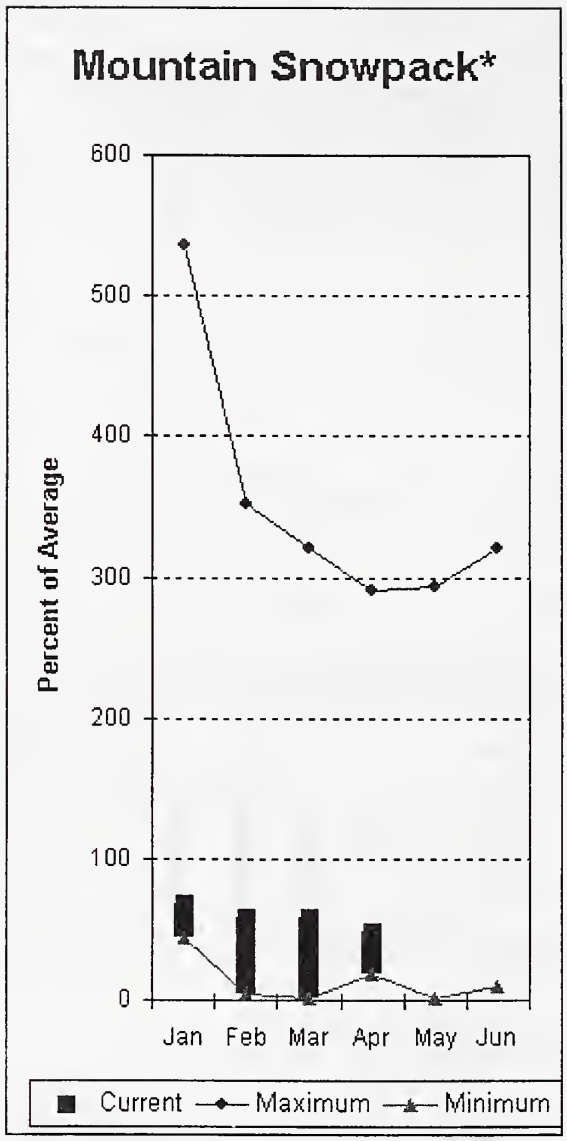
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

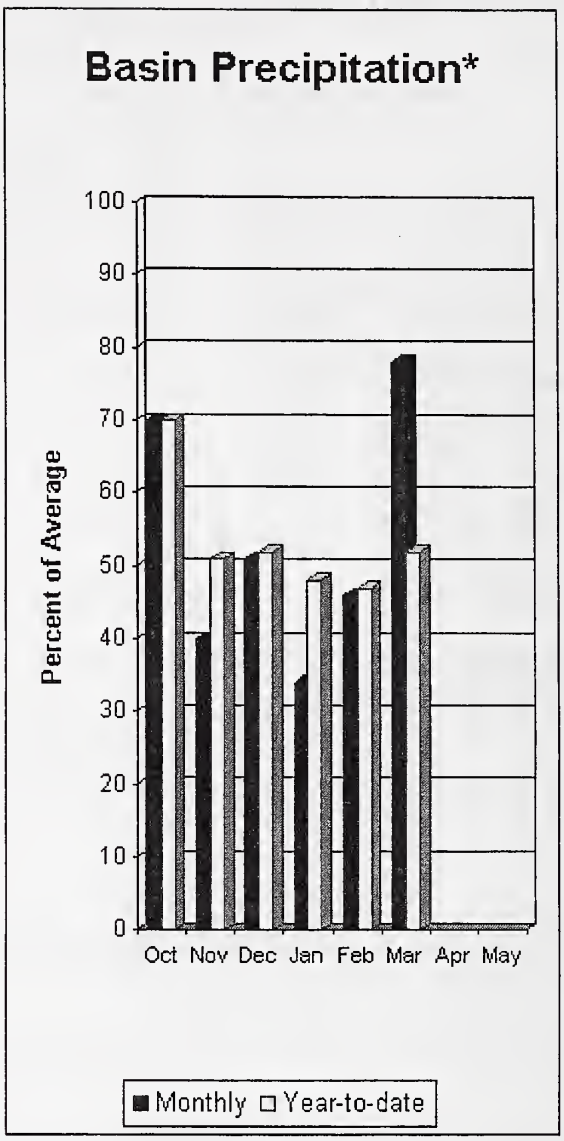
Colville-Pend Oreille River Basins
Percent of Average
April 1, 2001

Snowpack - 59%
Precipitation - 48%
Reservoir Capacity - 89%



Okanogan - Methow River Basins





*Based on selected stations

Summer runoff average forecast for the Okanogan River is 48%, Similkameen River is 47%, Methow River is 49% and Salmon Creek is 54%. April 1 snow cover on the Okanogan was 58% of average and Methow was 55%. Moses Mountain SNOTEL site had an April 1 reading of 47% of average. March precipitation in the Okanogan-Methow was 78% of average, with precipitation for the water year at 52% of average. March streamflow for the Methow River was 49% of average, 44% for the Okanogan River and 49% for the Similkameen. Snow-water -content at the Salmon Meadows SNOTEL, near Conconully, was 6.4 inches. Average for this site is 9.4 inches on April 1. Combined storage in the Conconully Reservoirs was 13,500-acre feet, which is 57% of capacity and 90% of the April 1 average. Temperatures were 2 degrees above normal for the past month and near normal for the water year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - April 1, 2001

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SIMILKAMEEN near Nighthawk (1)	APR-JUL	284	505	605	46	705	926	1304
	APR-SEP	313	545	650	47	755	987	1399
OKANOGAN near Tonasket (1)	APR-JUL	147	530	704	48	878	1261	1466
	APR-SEP	156	582	775	48	968	1394	1623
SALMON CREEK near Conconully	APR-JUL	0.2	5.7	10.4	55	15.1	22	19.1
	APR-SEP	0.2	5.8	10.8	54	15.8	23	20
METHOW RIVER near Pateros	APR-SEP	343	412	460	49	508	577	942
	APR-JUL	338	401	443	51	485	548	873

OKANOGAN - METHOW RIVER BASINS
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
SALMON LAKE	10.5	6.9	7.4	8.0
CONCONULLY RESERVOIR	13.0	6.6	12.2	7.0

OKANOGAN - METHOW RIVER BASINS
Watershed Snowpack Analysis - April 1, 2001

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
OKANOGAN RIVER	23	60	58
OMAK CREEK	1	37	47
SANPOIL RIVER	0	0	0
SIMILKAMEEN RIVER	4	95	67
TOATS COULEE CREEK	1	0	8
CONCONULLY LAKE	3	55	53
METHOW RIVER	5	58	55

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

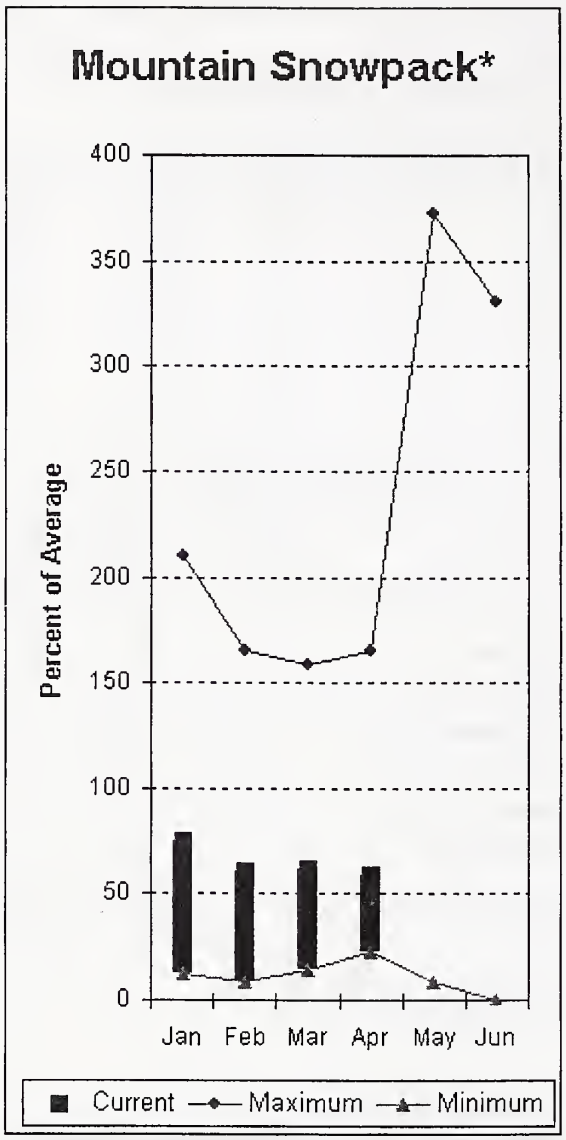
The average is computed for the 1961-1990 base period.

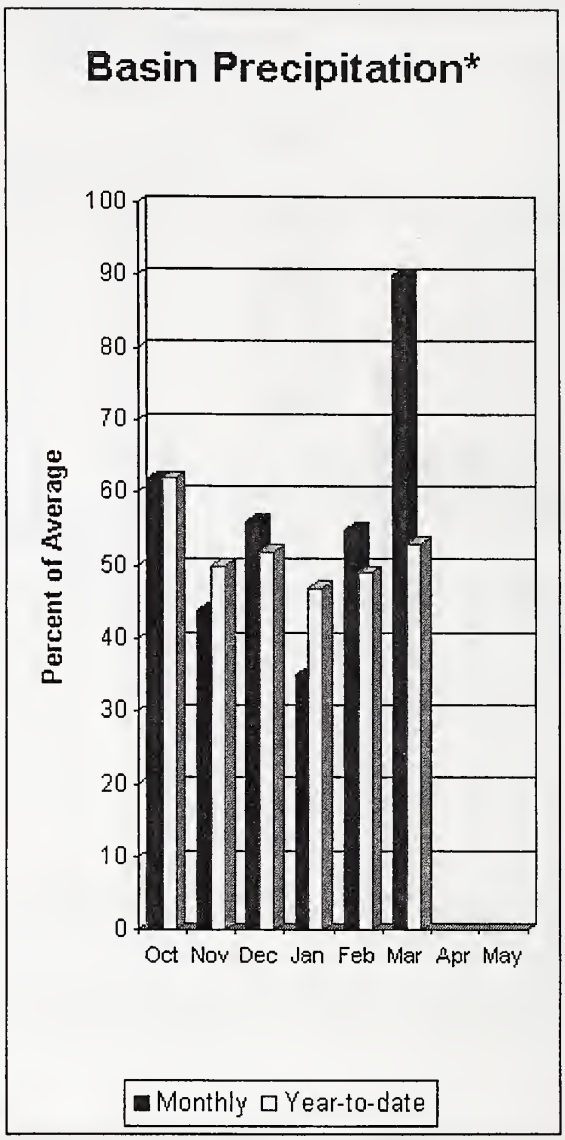
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Okanogan-Methow River Basins
Percent of Average
April 1, 2001

Snowpack - 48%
Precipitation - 52%
Reservoir Capacity - 57%

Wenatchee - Chelan River Basins





*Based on selected stations

Precipitation during March was 90% of average in the basin and 53% for the year-to-date. Runoff for Entiat River is forecast to be 55% of average for the summer. The April-September average forecast for Chelan River is 61%, Wenatchee River at Plain is 59% and Stehekin is 63%. Icicle, Stemilt and Squilchuck creeks are all expected to fall into the same forecast range. March average streamflows on the Chelan River were 47% and on the Wenatchee River 46%. April 1 average snowpack in Wenatchee Basin was 58%, in Chelan Basin was 60%; and Stemilt Creek was 63%. Snowpack in the Entiat River Basin was 55% of average. Reservoir storage in Lake Chelan was 405,200-acre feet, 191% of April 1 average and 60% of capacity. Lyman Lake SNOTEL had the most snow water with 29.4 inches of water. This site would normally have 56.9 inches on April 1. Temperatures were about 1 degree above normal for March.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - April 1, 2001

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
CHELAN RIVER near Chelan	APR-SEP	574	655	710	61	765	846	1160
	APR-JUL	519	588	635	62	682	751	1024
STEHEKIN near STEHEKIN	APR-SEP	424	481	520	63	559	616	827
	APR-JUL	372	418	449	64	480	526	701
ENTIAT RIVER near Ardenvoir	APR-SEP	100	115	125	55	135	150	227
	APR-JUL	88	102	112	54	122	136	206
WENATCHEE at Plain	APR-SEP	562	647	705	59	763	848	1190
	APR-JUL	521	589	635	59	681	749	1072
WENATCHEE R. at Peshastin	APR-SEP	513	755	920	56	1085	1327	1636
	APR-JUL	384	661	850	57	1039	1316	1485
STEMILT nr Wenatchee (miners in)	MAY-SEP	38	64	82	59	100	126	138
ICICLE CREEK near Leavenworth	APR-SEP	192	215	230	67	245	268	344
	APR-JUL	182	200	213	67	226	244	318
COLUMBIA R. bl Rock Island Dam (2)	APR-SEP	34955	39328	42300	60	45272	49645	70485
	APR-JUL	28024	32714	35900	60	39086	43776	59736

WENATCHEE - CHELAN RIVER BASINS
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
CHELAN LAKE	676.1	405.2	277.1	212.1

WENATCHEE - CHELAN RIVER BASINS
Watershed Snowpack Analysis - April 1, 2001

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
CHELAN LAKE BASIN	4	56	60
ENTIAT RIVER	2	54	55
WENATCHEE RIVER	13	58	58
SQUILCHUCK CREEK	0	0	0
STEMILT CREEK	2	71	63
COLOCKUM CREEK	2	61	59

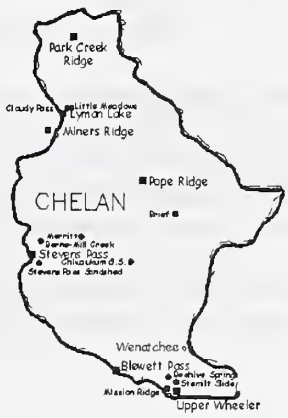
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

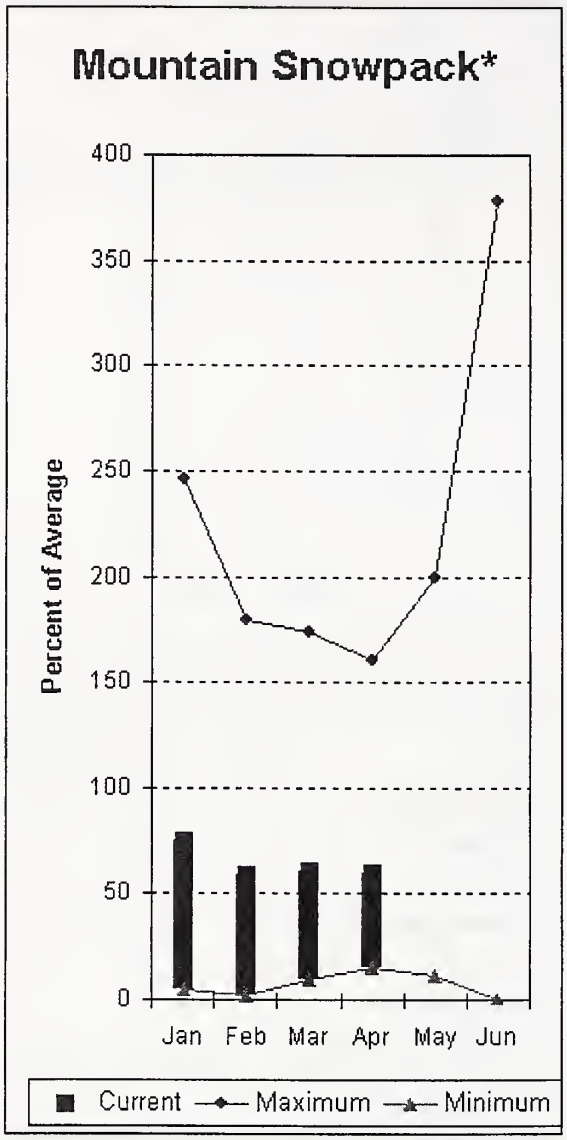
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

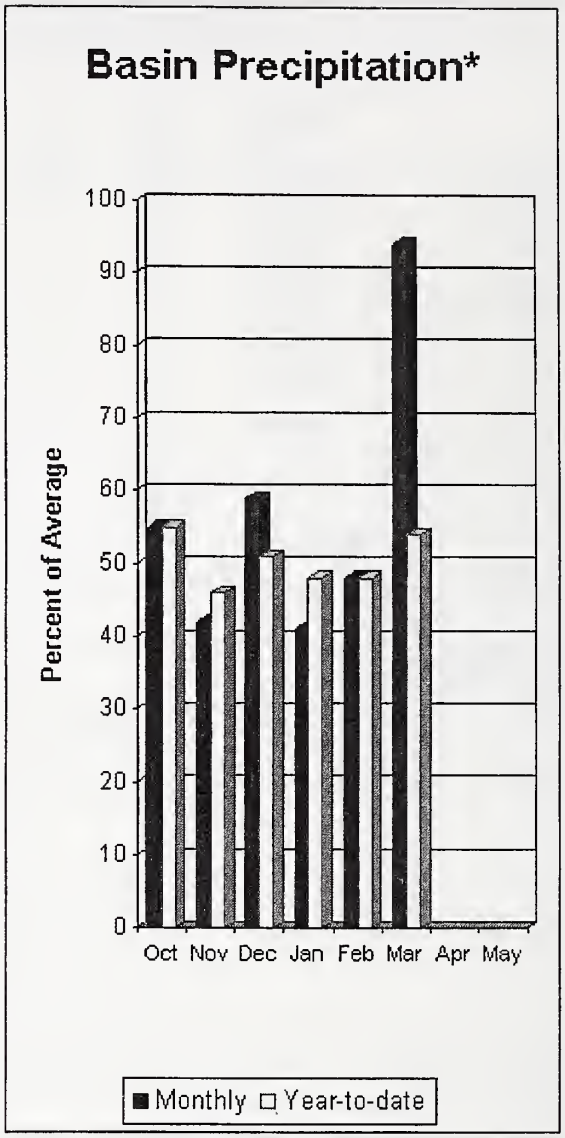
Wenatchee-Chelan River Basins
Percent of Average
April 1, 2001

Snowpack - 59%
Precipitation - 53%
Reservoir Capacity - 60%



Upper Yakima River Basin





*Based on selected stations

April 1 reservoir storage for the Upper Yakima reservoirs was 269,400-acre feet, 46% of average. Forecasts for the Yakima River at Cle Elum are 64% of average and the Teanaway River near Cle Elum is at 60%. Lake inflows are all forecasted to be much below average this summer. March streamflows within the basin were Yakima near Cle Elum at 71% and Cle Elum River near Roslyn at 71%. April 1 snowpack was 60% based upon 12 snow courses and SNOTEL readings within the Upper Yakima Basin. Precipitation was 94% of average for March and 54% year-to-date for water. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - April 1, 2001

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (Most Probable) (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
KEECHELUS LAKE INFLOW	APR-JUL	71	81	88	71	95	105	124
	APR-SEP	75	87	95	70	103	115	135
KACHESS LAKE INFLOW	APR-JUL	58	66	71	64	76	84	111
	APR-SEP	59	68	74	63	80	89	118
CLE ELUM LAKE INFLOW	APR-JUL	221	243	258	63	273	295	409
	APR-SEP	233	258	275	61	292	317	448
YAKIMA at Cle Elum	APR-JUL	475	517	545	66	573	615	832
	APR-SEP	506	553	585	64	617	664	915
TEANAWAY near Cle Elum	APR-JUL	65	77	85	60	93	105	141
	APR-SEP	51	72	87	60	102	123	145

UPPER YAKIMA RIVER BASIN
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
KEECHELUS	157.8	33.6	77.5	110.0
KACHESS	239.0	132.9	199.5	187.0
CLE ELUM	436.9	102.9	289.1	290.0

UPPER YAKIMA RIVER BASIN
Watershed Snowpack Analysis - April 1, 2001

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
UPPER YAKIMA RIVER	12	57	60

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

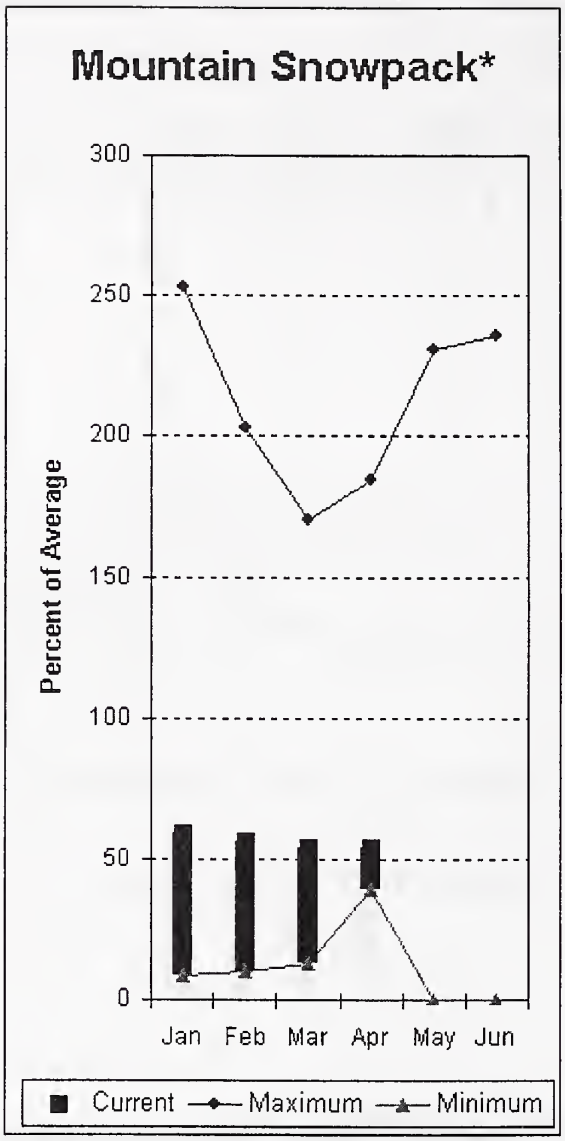
The average is computed for the 1961-1990 base period.

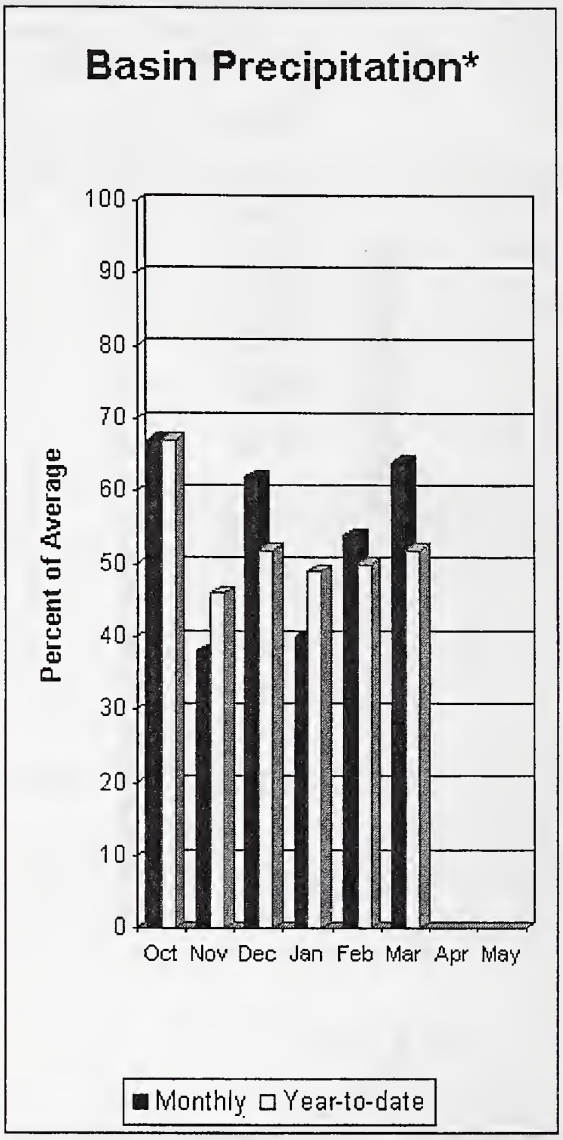
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Upper Yakima River Basin
Percent of Average
April 1, 2001

Snowpack - 60%
Precipitation - 54%
Reservoir Capacity - 32%

Lower Yakima River Basin





*Based on selected stations

March average streamflows within the basin were: Yakima River near Parker, 50%; Naches River near Naches, 38%; and Yakima River at Kiona, 43%. April 1 reservoir storage for Bumping and Rimrock reservoirs was 118,100-acre feet, 77% of average. Forecast averages for Yakima River near Parker are 55%; American River near Nile, 59%; Ahtanum Creek, 54%; and Klickitat River near Glenwood, 70%. April 1 snowpack was 59% based upon 7 snow courses and SNOTEL readings within the Lower Yakima Basin. Precipitation was 64% of average for March and 52% year-to-date for water. Temperatures were 1 degree above normal for the month and 1 degree below average for the water year. Volume forecasts for Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - April 1, 2001

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
BUMPING LAKE INFLOW	APR-SEP	62	70	75	55	80	88	136
	APR-JUL	56	63	68	55	73	80	124
AMERICAN RIVER near Nile	APR-SEP	58	65	70	59	75	82	118
	APR-JUL	54	61	66	61	71	78	109
RIMROCK LAKE INFLOW	APR-SEP	100	115	125	53	135	150	238
	APR-JUL	86	97	105	53	113	124	200
NACHES near Naches	APR-SEP	372	415	445	54	475	518	832
	APR-JUL	339	381	410	54	439	481	755
AHTANUM CREEK nr Tampico (2)	APR-SEP	8.2	18.2	25	54	32	42	46
	APR-JUL	7.3	16.5	23	54	29	38	42
YAKIMA near Parker	APR-SEP	931	1032	1100	55	1168	1269	1994
	APR-JUL	881	970	1030	57	1090	1179	1805
KLICKITAT near Glenwood	APR-JUN	62	71	77	70	83	92	110
	APR-SEP	76	89	98	70	107	120	140

LOWER YAKIMA RIVER BASIN
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
BUMPING LAKE	33.7	5.7	13.4	11.0
RIMROCK	198.0	112.4	150.1	142.0

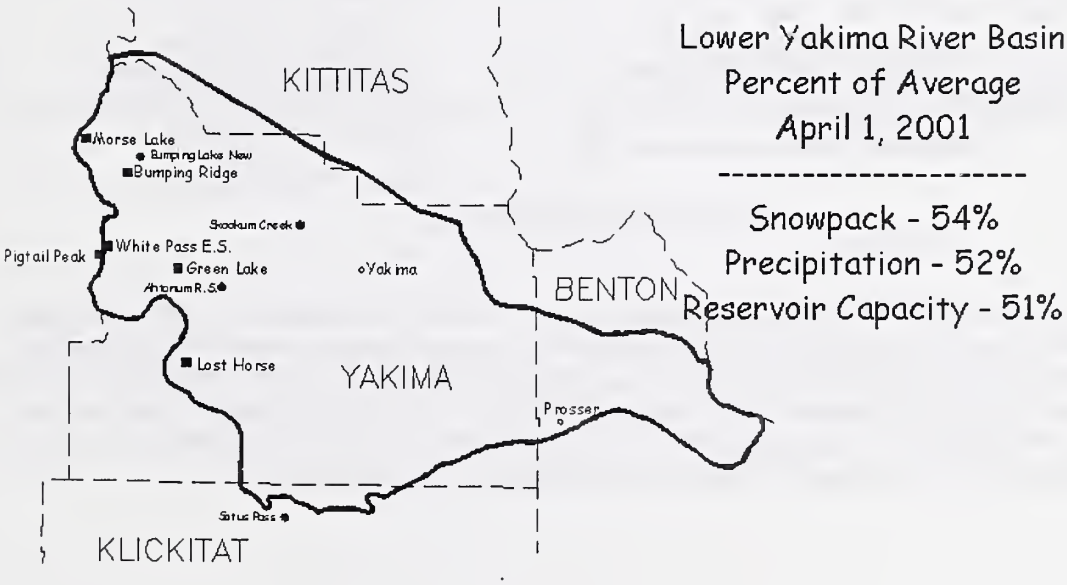
LOWER YAKIMA RIVER BASIN
Watershed Snowpack Analysis - April 1, 2001

Watershed	Number of Data Sites	This Year as % of Last Yr	Average

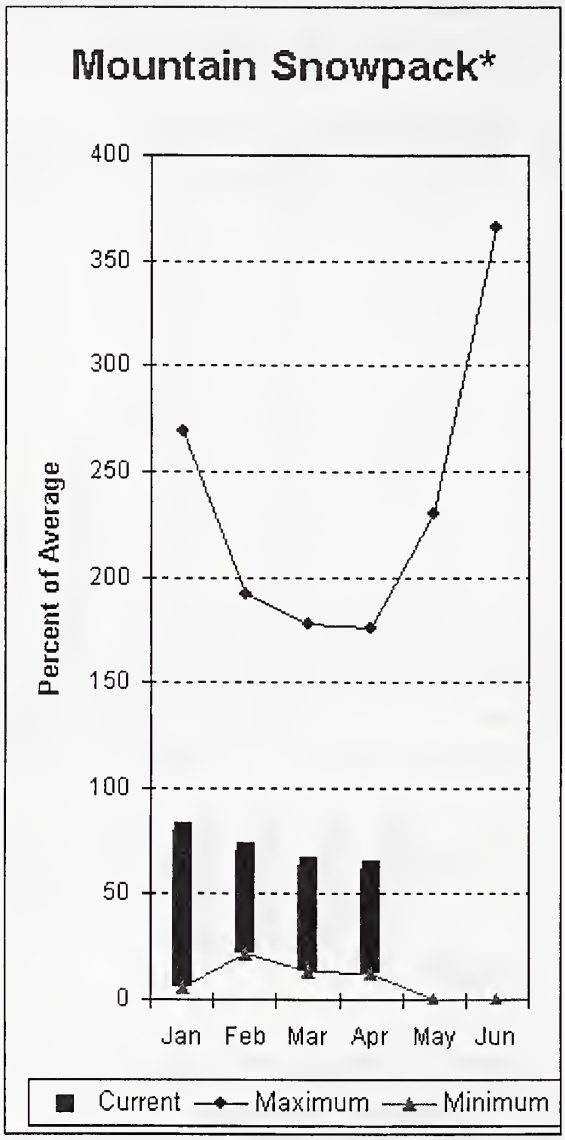
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

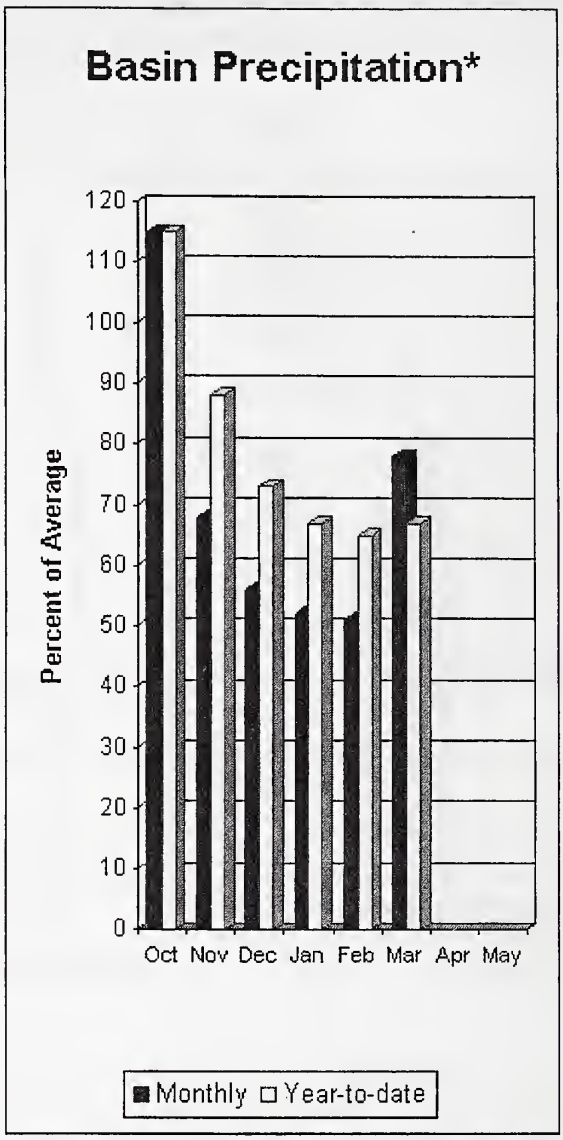
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.



Walla Walla River Basin





*Based on selected stations

March precipitation was 78% of average, dropping the year-to-date precipitation to 67% of average. April 1 average snowpack was at 62%. The forecast for the coming summer is for 76% of average streamflow in the South Fork Walla Walla River and 79% for Mill Creek. March streamflow was 119% of average for the Walla Walla River. The Touchet SNOTEL site had 21.4 inches of snow-water-equivalent. The average April 1 reading for this site is 31.9 inches. Average temperatures were near normal for March and have averaged 2-3 degrees below normal for the water year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - April 1, 2001

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
MILL CREEK at Walla Walla	APR-SEP	7.5	11.1	13.5	79	15.9	19.5	17.1
	APR-JUL	7.4	11.0	13.4	79	15.8	19.4	16.9
SF WALLA WALLA near Milton-Freewater	APR-JUL	33	38	41	77	44	49	53
	APR-SEP	41	46	50	76	54	59	66

WALLA WALLA RIVER BASIN
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

WALLA WALLA RIVER BASIN
Watershed Snowpack Analysis - April 1, 2001

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
WALLA WALLA RIVER	2	56	62

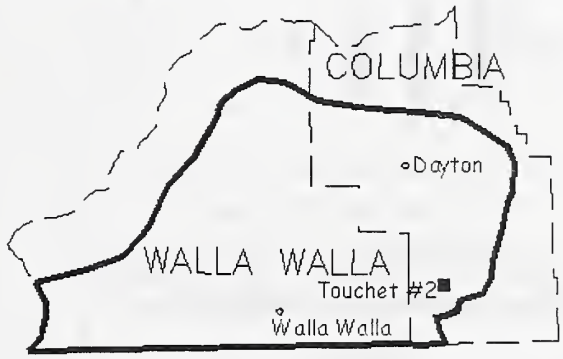
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

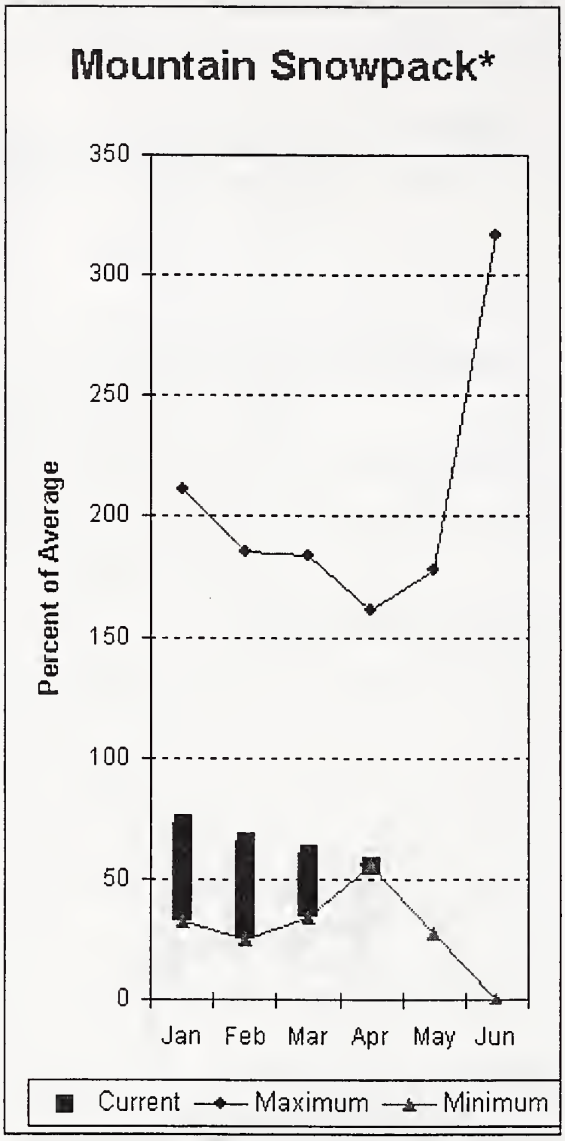
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

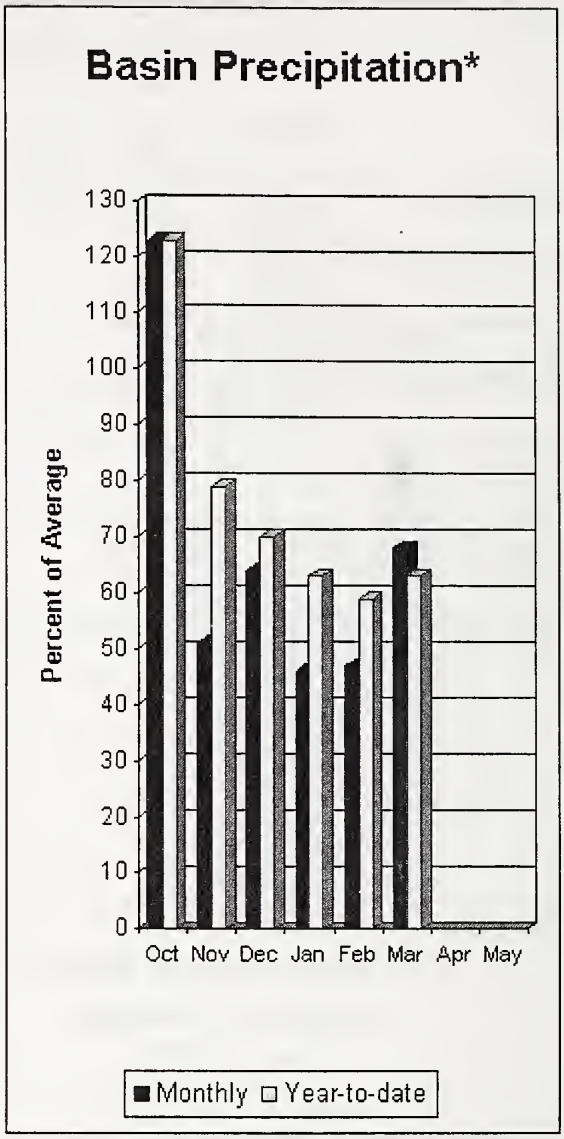
Walla Walla River Basin
Percent of Average
April 1, 2001

Snowpack - 62%
Precipitation - 67%



Lower Snake River Basin





*Based on selected stations

The April - September forecast is for 46% of average streamflow in the Snake River below Lower Granite Dam, 54% for Grande Ronde at Troy, and 52% for Clearwater River at Spalding. March precipitation was 68% of average, bringing the year-to-date precipitation to 63% of average. April 1 snowpack was at 56% of average. March streamflow was 56% of average for Snake River below Lower Granite Dam and 56% for Grande Ronde River near Troy. Average temperatures 2 degrees above normal for March and remained 2 degrees below normal for the water year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - April 1, 2001

Forecast Point	Forecast Period	<<======= Drier ======= Future Conditions ======= Wetter =======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
GRANDE RONDE at Troy (1)	APR-JUL	314	548	655	54	762	996	1214
	APR-SEP	342	595	710	54	825	1078	1312
*CLEARWATER at Spalding (1,2)	APR-JUL	2481	3443	3880	51	4317	5279	7618
	APR-SEP	2725	3732	4190	52	4648	5655	8051
SNAKE blw Lower Granite Dam (1,2)	APR-JUL	5084	8465	10000	46	11535	14916	21650
	APR-SEP	5775	9574	11300	46	13026	16825	24360

LOWER SNAKE RIVER BASIN
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

LOWER SNAKE RIVER BASIN
Watershed Snowpack Analysis - April 1, 2001

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
LOWER SNAKE, GRANDE RONDE	17	55	59

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

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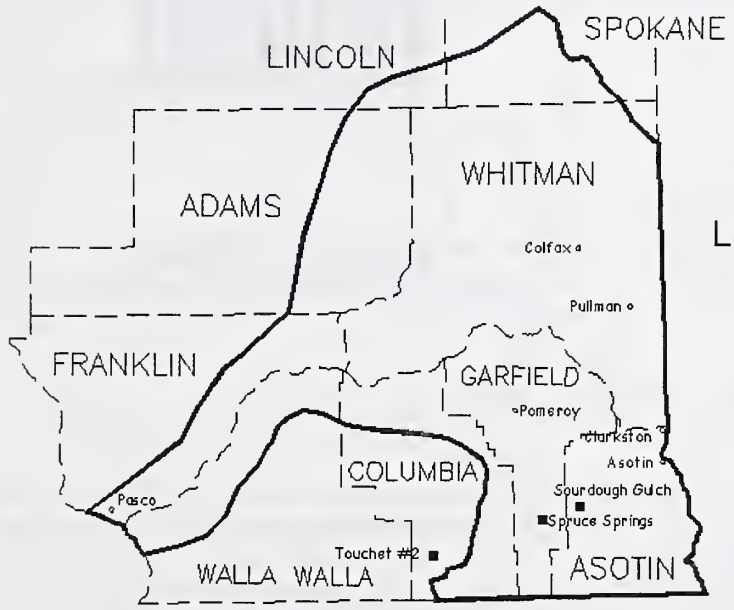
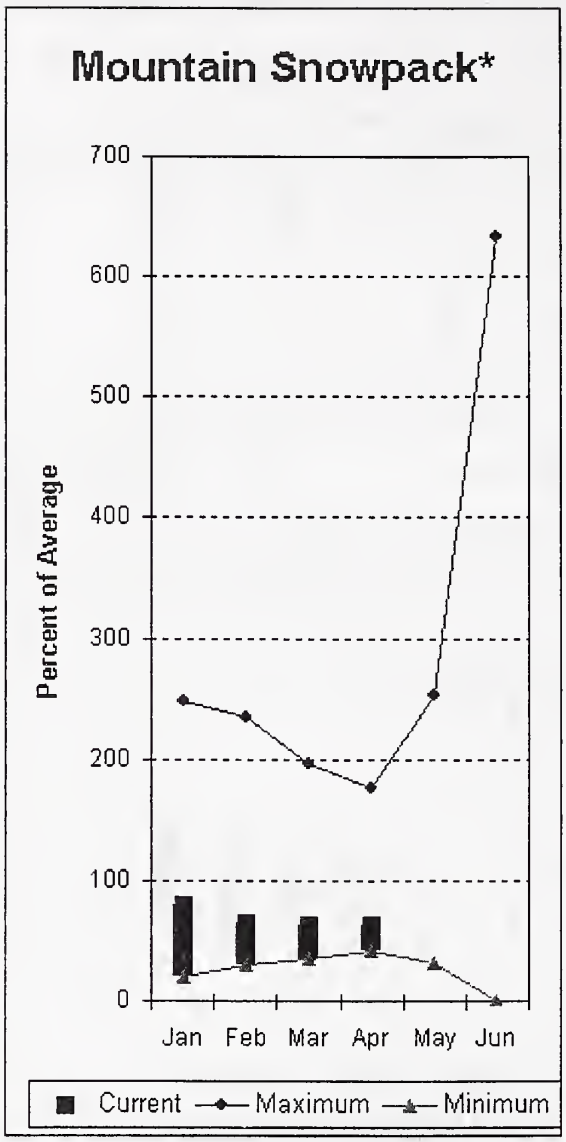
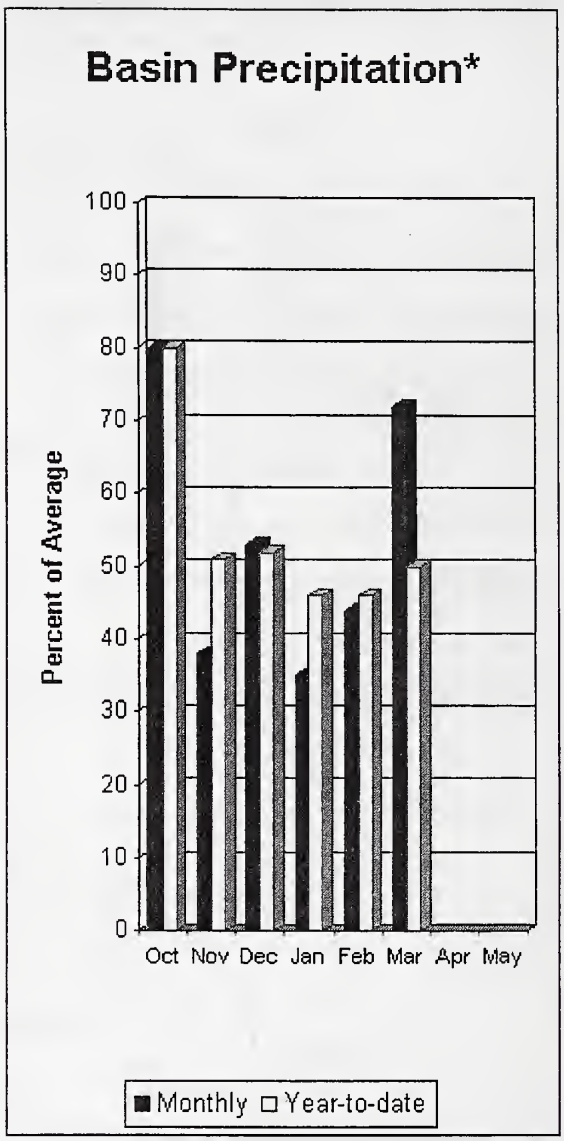


Lower Snake River Basin
Percent of Average
April 1, 2001

Snowpack - 56%
Precipitation - 63%

Cowlitz - Lewis River Basins





*Based on selected stations

Forecasts for April – September streamflows within the basin are Lewis at Ariel; 65%, Cowlitz at Castle Rock; 63% and the Columbia at The Dalles; 53% of average. March average streamflow for Cowlitz River was 55% and 64% for Lewis River. March precipitation was 72% of average and the water-year average was 50%. April 1 snow cover for Cowlitz River was 58%, and Lewis River was 69% of average. Paradise Park SNOTEL reported the most water content for the basin with 42.5 inches. Average April 1 water content is 62.1 inches. Average temperatures were near normal during March and have remained near average throughout the water year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - April 1, 2001

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
LEWIS at Ariel (2)	APR-JUL	418	583	695	66	807	972	1053
	APR-SEP	496	665	780	65	895	1064	1206
COWLITZ R. bl Mayfield Dam (2)	APR-SEP	278	797	1150	58	1503	2022	1970
	APR-JUL	136	656	1010	58	1364	1884	1731
COWLITZ R. at Castle Rock (2)	APR-SEP	472	1191	1680	63	2169	2888	2667
	APR-JUL	623	1121	1460	63	1799	2297	2325
KLICKITAT near Glenwood	APR-JUN	62	71	77	70	83	92	110
	APR-SEP	76	89	98	70	107	120	140
COLUMBIA R. at The Dalles (2)	APR-SEP	42094	48349	52600	53	56851	63106	98982
	APR-JUL	33863	40554	45100	53	49646	56337	84760

COWLITZ - LEWIS RIVER BASINS
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

COWLITZ - LEWIS RIVER BASINS
Watershed Snowpack Analysis - April 1, 2001

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
LEWIS RIVER	4	44	69
COWLITZ RIVER	7	51	58

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

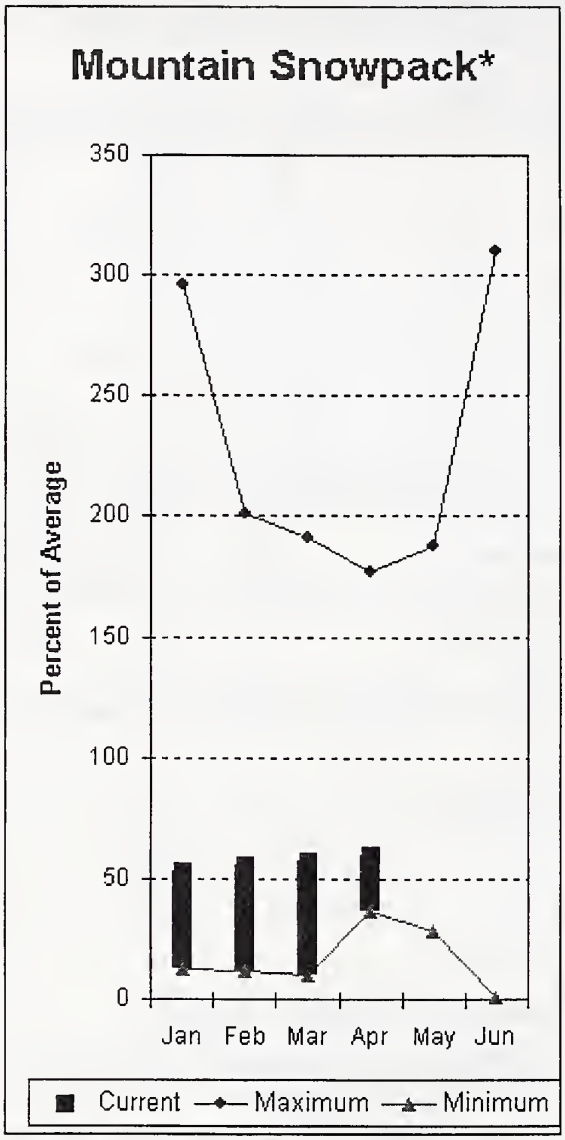
The average is computed for the 1961-1990 base period.

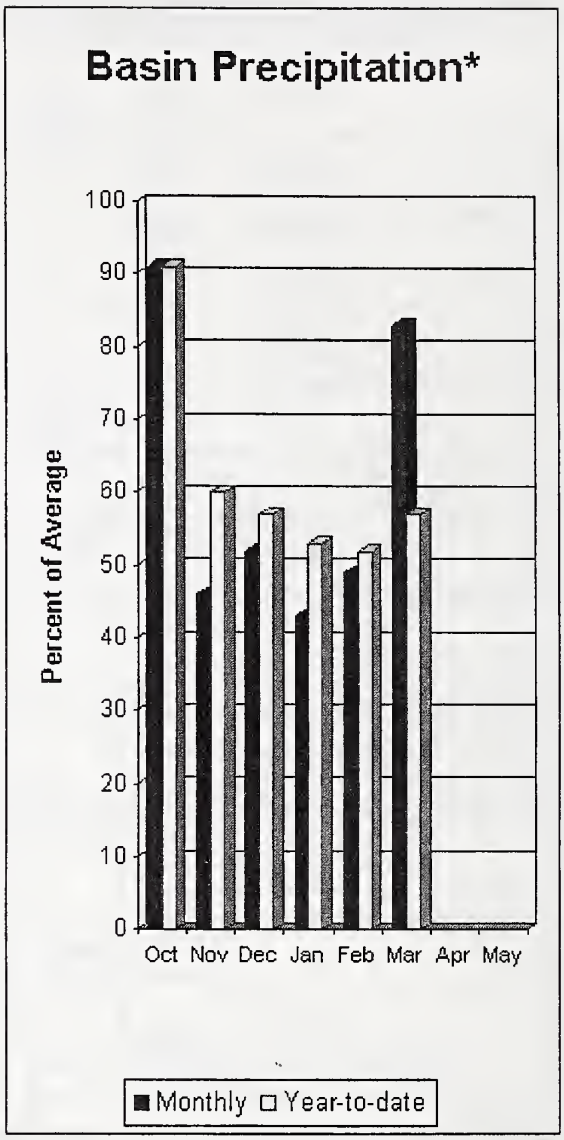
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Cowlitz-Lewis River Basins
Percent of Average
April 1, 2001

Snowpack - 64%
Precipitation - 50%

White - Green River Basins





*Based on selected stations

Summer runoff is forecast to be 67% of normal for the Green River below Howard Hanson Dam and 69% for the White River near Buckley. April 1 snowpack was 60% of average in both White River and Puyallup river basins and 59% in Green River Basin. Water content on April 1 at Corral Pass SNOTEL, at an elevation of 6,000 feet, was 20.7 inches. This site has a April 1 average of 32.6 inches. March precipitation was 83% of average, bringing the water year-to-date to 57% of average for the basins. Average temperatures in the area were near normal.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - April 1, 2001

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
WHITE near Buckley (1,2)	APR-JUL	222	274	298	67	322	374	447
	APR-SEP	284	345	372	69	399	460	542
GREEN below Howard Hanson (1,2)	APR-JUL	124	157	172	67	187	220	257
	APR-SEP	138	175	191	67	207	244	285

WHITE - GREEN - PUYALLUP RIVER BASINS
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

WHITE - GREEN - PUYALLUP RIVER BASINS
Watershed Snowpack Analysis - April 1, 2001

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
WHITE RIVER	3	54	60
GREEN RIVER	7	56	60
PUYALLUP RIVER	3	54	60

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

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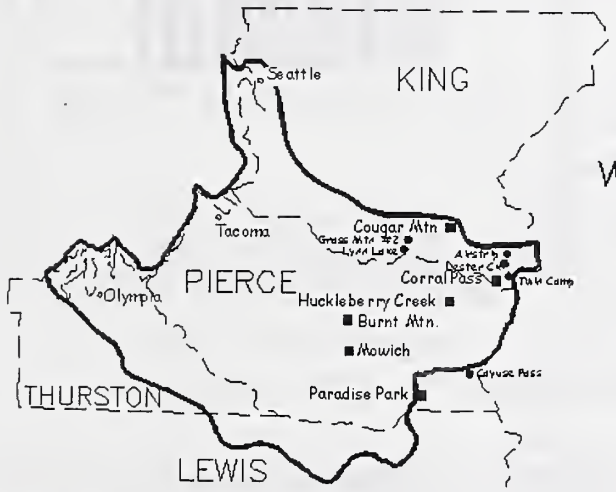
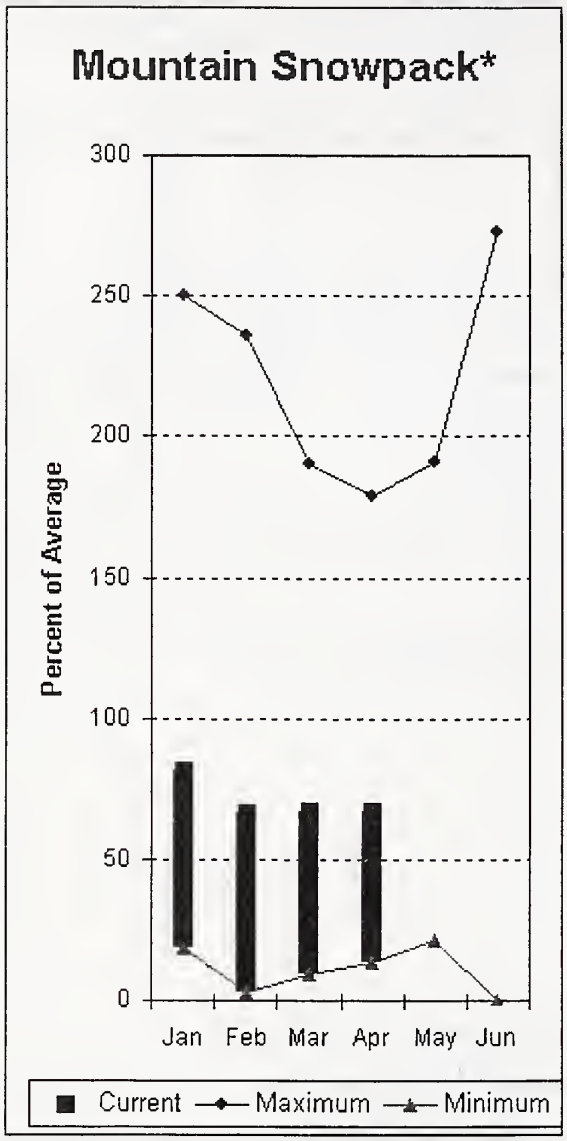
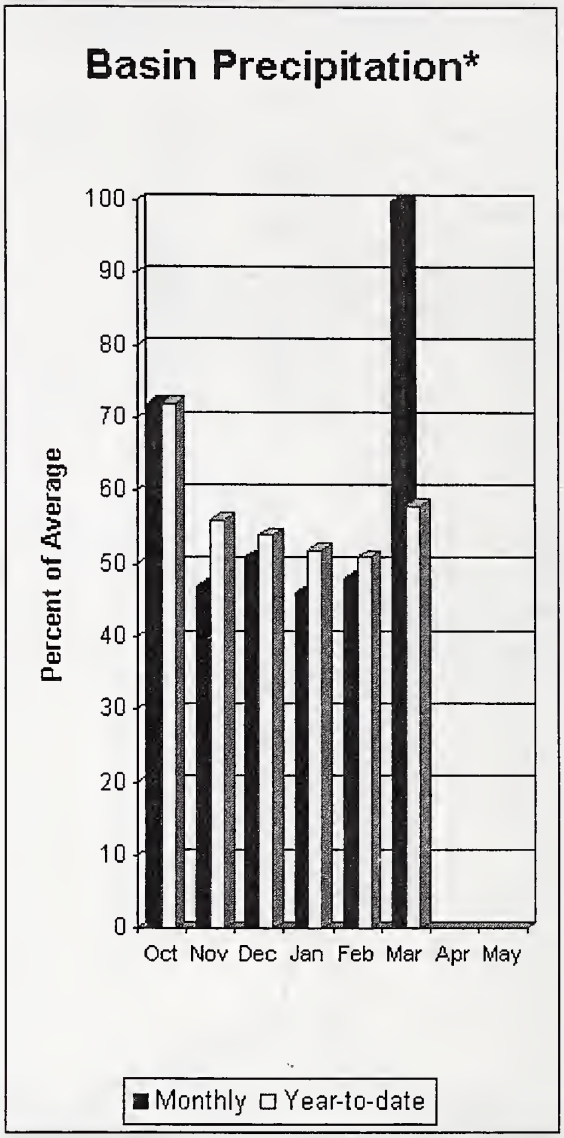


White-Green-Puyallup Basins
Percent of Average
April 1, 2001

Snowpack - 60%
Precipitation - 57%

Central Puget Sound River Basins





*Based on selected stations

Forecast for spring and summer flows are: 72% for Cedar River near Cedar Falls; 73% for Rex River; 73% for South Fork of the Tolt River; and 67% for Cedar River at Cedar Falls. Basin-wide precipitation for March was 100% of average, bringing water-year-to-date to 58% of average. April 1 average snow cover in Cedar River Basin was 76%, Tolt River Basin was 63%, Snoqualmie River Basin was 65%, and Skykomish River Basin was 63%. Stevens Pass SNOTEL, at 4,070 feet, had 23.2 inches of water content. Average April 1 water content is 42.3 inches. March temperatures were near normal for the past month.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - April 1, 2001

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
CEDAR near Cedar Falls	APR-JUL	41	49	55	72	61	69	77
	APR-SEP	46	55	61	72	67	77	84
REX near Cedar Falls	APR-JUL	12.8	16.8	19.5	72	22	26	27
	APR-SEP	14.7	19.0	22	73	25	29	30
CEDAR RIVER at Cedar Falls	APR-JUL	35	47	56	68	65	77	82
	APR-SEP	36	48	55	67	63	74	83
SOUTH FORK TOLT near Index	APR-JUL	8.6	10.0	11.0	72	12.0	13.4	15.2
	APR-SEP	9.9	11.8	13.0	73	14.2	16.1	17.8

CENTRAL PUGET SOUND RIVER BASINS
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

CENTRAL PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - April 1, 2001

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
CEDAR RIVER	5	61	78
TOLT RIVER	3	45	63
SNOQUALMIE RIVER	6	53	65
SKYKOMISH RIVER	4	54	63

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

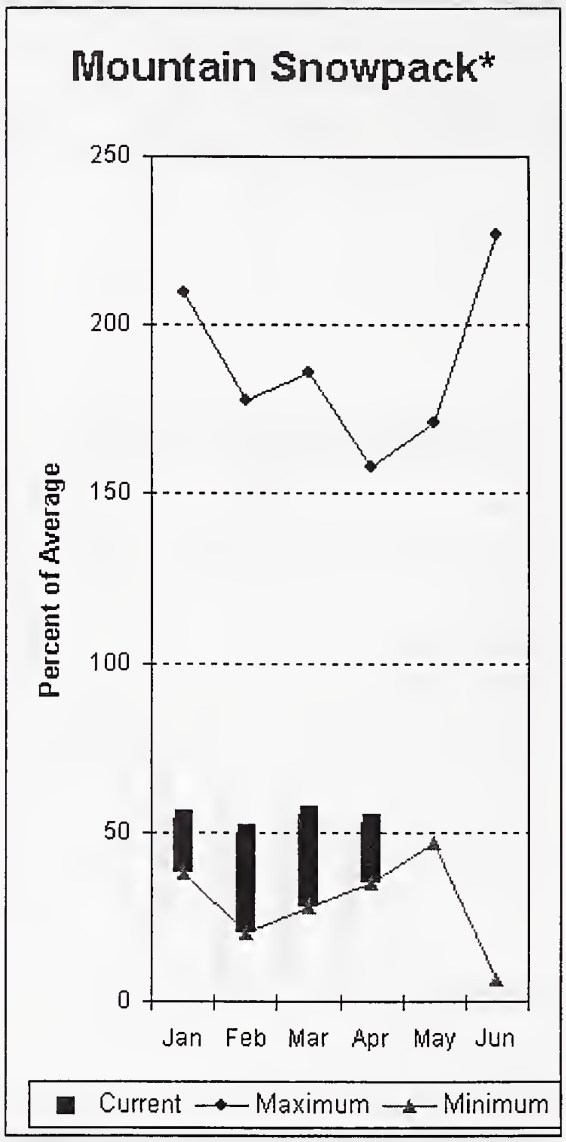
The average is computed for the 1961-1990 base period.

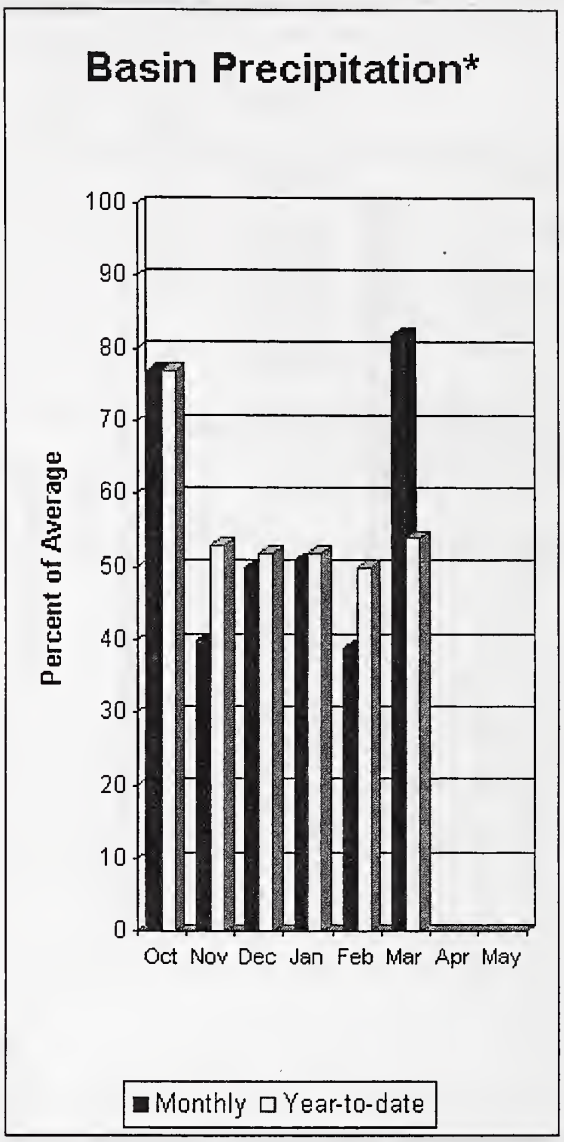
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Central Puget Sound Basins
Percent of Average
April 1, 2001

Snowpack - 67%
Precipitation - 58%

North Puget Sound River Basins





*Based on selected stations

Forecast for Skagit River streamflow is 69% of average for the spring and summer period. March streamflow in Skagit River was 57% of average. Other forecast points included Baker River at 67% and Thunder Creek at 70% of average. Basin-wide precipitation for March was 82% of average, bringing water-year-to-date to 54% of average. April 1 average snow cover in Skagit River Basin was 51%, Baker River Basin was 51% and Nooksack River Basin was 56%. Rainy Pass SNOTEL, at 4,780 feet, had 23.1 inches of water content. Average April 1 water content was 38 inches. April 1 Skagit River reservoir storage was 243% of average and 52% of capacity. Average March temperatures were 1 degrees above normal for the basin but remain near average for the water year. Highway 20, at Washington Pass made it's earliest opening on March 22. Previously the pass had only opened as early as March 24 and did not close, do to snow, in 1977.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - April 1, 2001

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
THUNDER CREEK near Newhalem	APR-JUL	134	150	161	70	172	188	230
	APR-SEP	201	218	230	70	242	259	328
*SKAGIT at Newhalem (2)	APR-JUL	1105	1210	1281	68	1352	1457	1879
	APR-SEP	1294	1419	1504	69	1589	1714	2191
BAKER RIVER near Concrete	APR-JUL	468	527	568	68	609	668	836
	APR-SEP	592	665	715	67	765	838	1064

NORTH PUGET SOUND RIVER BASINS
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
ROSS	1404.1	724.9	610.0	298.0
DIABLO RESERVOIR	90.6	86.7	87.2	---
GORGE RESERVOIR	9.8	86.8	7.8	---

NORTH PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - April 1, 2001

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
SKAGIT RIVER	12	52	51
BAKER RIVER	3	48	51
NOOKSACK RIVER	2	47	56

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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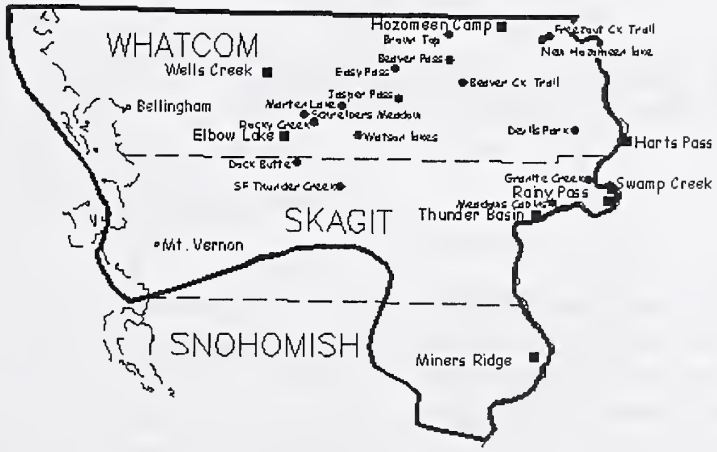
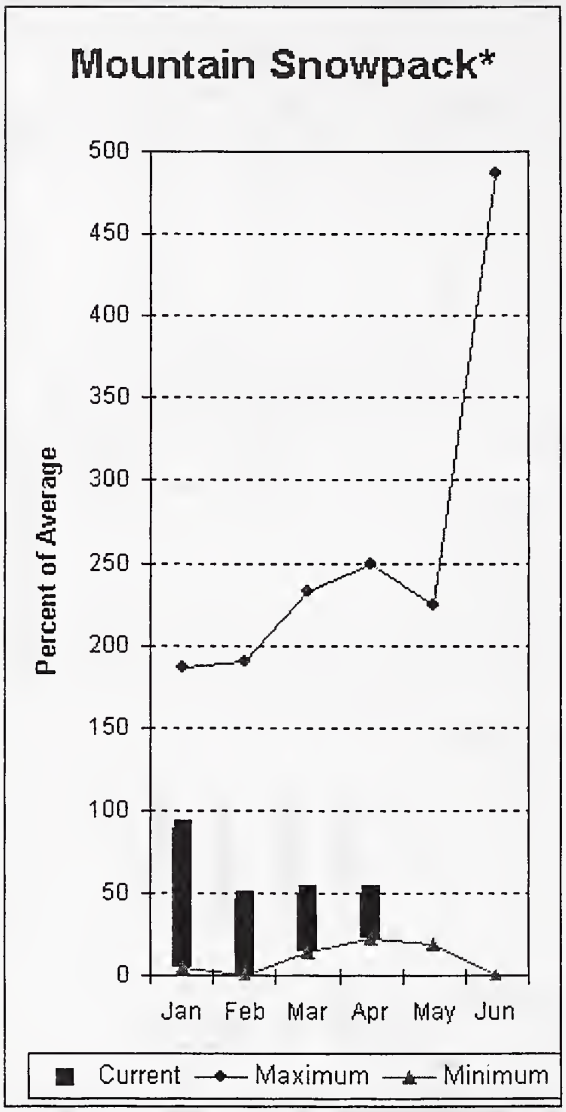
(2) - The value is natural flow - actual flow may be affected by upstream water management.

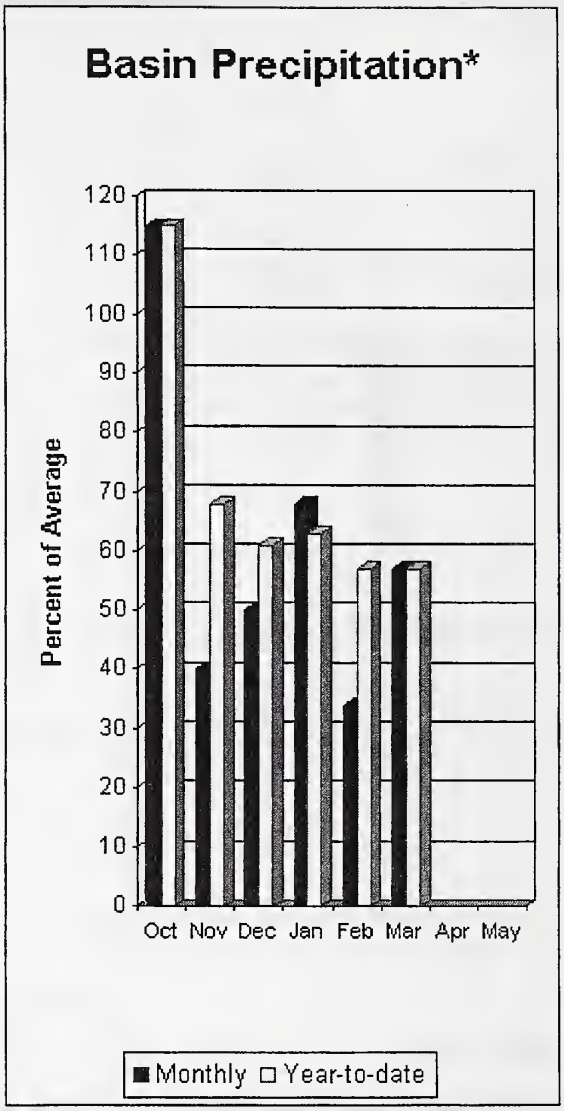
North Puget Sound Basins
Percent of Average
April 1, 2001

Snowpack - 53%
Precipitation - 54%
Reservoir Capacity - 52%



Olympic Peninsula River Basins





*Based on selected stations

Forecasted average runoff for streamflow in Dungeness River Basin is 66% and 68% for Elwha River. Big Quilcene and Wynoochee rivers should expect below average runoff this summer also. March precipitation was 57% of average. Precipitation has accumulated at 57% of average for the water year. March precipitation at Quillayute was 7.09 inches. The thirty-year average for March is 11.05 inches. April 1 snow cover in Morse Creek Basin was 45% average, Dungeness River Basin was 40% and Quilcene River Basin was 64%. The Mount Crag SNOTEL near Quilcene had 20.1 inches of snow-water-equivalent on April 1. Average for this site is 31.5 inches. Temperatures were near average for the month and near average for the water year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - April 1, 2001

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
DUNGENESS near Sequim	APR-SEP	83	94	101	66	108	119	153
	APR-JUL	69	78	84	67	90	99	125
ELWHA near Port Angeles	APR-SEP	286	322	347	68	372	408	510
	APR-JUL	235	267	288	68	309	341	424

OLYMPIC PENINSULA RIVER BASINS
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

OLYMPIC PENINSULA RIVER BASINS
Watershed Snowpack Analysis - April 1, 2001

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
OLYMPIC PENINSULA	4	43	44
ELWHA RIVER	1	25	20
MORSE CREEK	1	45	45
DUNGENESS RIVER	1	35	40
QUILCENE RIVER	1	56	64
WYNOOCHEE RIVER	0	0	0

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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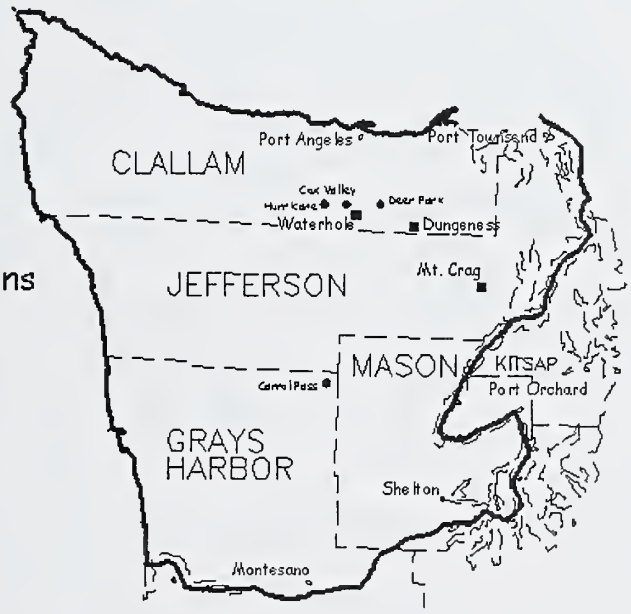
Olympic Peninsula River Basins
Percent of Average
April 1, 2001

Snowpack - 50%
Precipitation - 57%



Issued by

Pearlie S. Reed
Chief
Natural Resources Conservation Service
U.S. Department of Agriculture

Released by

Leonard Jordan
State Conservationist
Natural Resources Conservation Service
Spokane, Washington

The Following Organizations Cooperate with the Natural Resources Conservation Service in Snow Survey Work*:

Canada	Ministry of the Environment Investigations Branch, Victoria, British Columbia
State	Washington State Department of Ecology Washington State Department of Natural Resources
Federal	Department of the Army Corps of Engineers U.S. Department of Agriculture Forest Service U.S. Department of Commerce NOAA, National Weather Service U.S. Department of Interior Bonneville Power Administration Bureau of Reclamation Geological Survey National Park Service Bureau of Indian Affairs
Local	City of Tacoma City of Seattle Chelan County P.U.D. Pacific Power and Light Company Puget Sound Power and Light Company Washington Water Power Company Snohomish County P.U.D. Colville Confederated Tribes Spokane County Yakama Indian Nation Whatcom County Pierce County
Private	Okanogan Irrigation District Wenatchee Heights Irrigation District Newman Lake Homeowners Association Whitestone Reclamation District

*Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.

Washington Snow Survey Office
2021 E. College Way, Suite 214
Mount Vernon, WA 98273-2873

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Washington Basin Outlook Report

Natural Resources Conservation Service
Spokane, WA